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International Adult Literacy Survey

Adult Education Participation in North America:

International Perspectives

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International Adult Literacy Survey

Adult Education Participation in North America:

International Perspectives

Albert Tuijnman and Emmanuel Boudard
Institute of International Education, Stockholm University

ADULT EDUCATION AND LITERACY MONOGRAPH SERIES

The monograph series contains focused studies on specific adult education and literacy-related themes deemed to be of high interest to policy makers, practitioners and the general public in America. Each monograph has an international and comparative orientation, drawing on empirical data collected as part of the International Adult Literacy Survey (IALS). The studies are designed to convey important findings from the IALS in an easily accessible format to a wide, non-technical audience. They build to a large extent on available data analyses and findings, but drawing out the important implications for policy-makers and program officials in America.

The IALS was a 22-country initiative conducted between 1994 and 1998. The U.S. component of the survey was funded primarily by the United States Department of Education, National Center for Education Statistics. The Canadian part was funded primarily by Human Resources Development Canada, Applied Research Branch and National Literacy Secretariat.

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Note of Appreciation

Canada owes the success of its statistical system to the long-standing co-operation of Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued co-operation and goodwill.

Table of Contents

List of figures

Preface

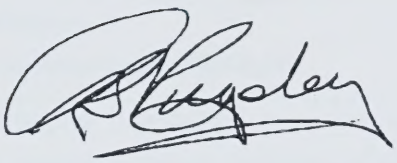
The U.S. Department of Education, Human Resources Development Canada and Statistics Canada issued the first report in the joint U.S.-Canadian monograph series in September 2000. Drawing on the results of the International Adult Literacy Survey (IALS), it examined the levels of literacy achieved in North America in a comparative perspective. It concluded that learning should be the self-evident key to improving literacy outcomes, and that meeting the challenges may require abandoning the conventional paradigm that equates learning only with schooling and replacing it with one that seeks a convergence of schools, homes, workplaces and whole communities into mutually reinforcing environments that encourage learning in many settings, both "life-wide" as well as "life-long".

Life-long learning is currently promoted not only for economic reasons but also as a means of strengthening social cohesion and active citizenship.[1] Adult education is an important ingredient of both life-long learning and civic society in North America, and it constitutes a major complement to investment in schools and colleges. It is appropriate, therefore, that this second monograph has a focus on adult education. It takes the analysis a step further by examining 15 international indicators that allow readers to compare the rate and volume of adult education participation of Americans and Canadians with those of populations in other advanced countries. The results show a varied picture, with Canada and the United States ahead on some measures but behind on others.

It is precisely this possibility to apply an external and comparative perspective to adult education that makes this monograph valuable. The IALS marks the first time an internationally comparative source of reliable data on adult education participation has become available. Although information about adult education is collected by many countries, because of the national characteristics of the surveys employed it is very difficult to ensure comparability. In both Canada and the United States there are more recent statistics from national sources on adult education and training than the data set analyzed here.[2] But even more recent data tend to confirm the levels and distributions discovered in the IALS data set, and for them external benchmarks are lacking.

1. For recent international and national documents advocating life-long learning, see OECD (1998a and 1998b), European Union (2000), Binkley *et al.* (1999), and Rubenson and Schuetze (2000).
2. More recent national data on adult education are available in Human Resources Development Canada and Statistics Canada (2001) and U.S. Department of Education, National Center for Education Statistics (2001).

Collecting comparative data is a difficult and time-consuming task. A consortium consisting of the Organisation for Economic Co-operation and Development (OECD), national governments, statistical offices, educational testing and research agencies is currently working on the design of a new international survey, one that is expected to yield interesting new information in two to three years from now. Meanwhile, it is our hope that the indicators in the current report will provide a useful basis for discussion and for the formulation of new hypotheses and aspirations for the development of adult education in North America.



Ronald S. Pugsley
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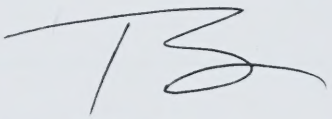

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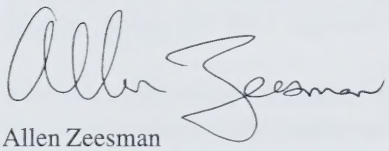

Allen Zeesman
Acting Director General

Applied Research Branch
Strategic Policy
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Summary and Highlights

Aims of the Surveys

The International Adult Literacy Survey was a 22-country initiative conducted between 1994 and 1998. In every country nationally representative samples of adults aged 16-65 were interviewed and tested at home, using the same literacy test. The main purpose of the survey was to find out how well adults used printed information to function in society. Another aim was to collect data on the incidence and volume of participation in adult education and training, and to investigate the relationships between initial and adult education, on the one hand, and literacy proficiency and wider economic and social outcomes, on the other.

Presentation of the Results

This monograph presents 15 international indicators of participation in adult education that allow readers to compare the functioning of training markets in North America with that of other advanced countries. The reference period for the data collection is the mid to late 1990s, depending on the country. The indicator values are derived using consistent variable definitions, population bases and calculation methods across the countries studied. Results are communicated by means of figures featured in the text but the underlying data values are also reported in Annex A. Where applicable, the tables in this annex also include the standard errors of the estimates. These errors are taken into account when overall country comparisons are made.

Rate of Participation

The indicators revealed substantial cross-national differences in the incidence of participation in adult education. For the general population aged 25-65, the participation rates were 35 percent for Canada and 39 percent for the United States. Rates were highest in Finland (56 percent) and lowest in Portugal (13 percent). The U.S. rate was slightly but significantly above the weighted country average (34 percent) but the Canadian rate was not. Of those who did receive adult education or training during the year before the interview, the vast majority of Americans and Canadians said they did so for job- or career-related reasons.

Study Intensity and Total Training Effort

Study intensity measured by average training duration in hours across a total of three possible courses also varied significantly across nations. Whereas Canada only had an average rate of participation, it scored quite high on the number of training hours (215) spent per

participant. Total training effort per capita (74 hours) was therefore above the weighted country average (48 hours) in Canada. The United States had a somewhat different pattern, characterized by an above-average training rate and average study intensity (46 hours). In terms of total training effort per capita, the United States therefore scored only average.

Determinants of Adult Education

Several factors were found to influence adult education participation. First of all, adults who already possessed higher levels of educational qualifications were much more likely than those with lower qualifications to participate. In many countries the education-related differences were even more important for study intensity than for the overall participation rate. On both indicators Canada and the United States were in an average position. Being younger instead of older, employed rather than unemployed, in a white-collar high-skill rather than a blue-collar low-skill job, and working for a large instead of a small establishment, were further factors influencing the training decision in North America.

Employer Support for Training

The IALS data also showed that in all countries employers were by far the most common sponsors of adult education and training. U.S. employers scored particularly high on this measure, similar to U.K. employers and significantly higher than Canadian employers. In the United States, those who had received support from their employer for training scored much above average on an indicator of engagement in literacy-related tasks in the workplace. In contrast, in Canada, the main factor was less the extent to which workers actually used their literacy skills at work and more the levels of literacy skills they already possessed.

Government Support for Training

There were clear differences between countries in the percentage of participants who said the course they took was supported financially either by themselves or by the government. The U.S. government ranked significantly below average on this indicator, but similarly as Australia and the Netherlands. Compared with the U.S., a significantly higher percentage of participants in Canada said the course they had taken had been supported financially by a government agency. These findings suggest that the high participation rates observed for some countries—the United States included—were in large measure due to the active role of employers in providing, encouraging and funding adult education and training activities. But at the same time, the more vocationally focused courses that were subsidized or otherwise sponsored by employers tended to be of a briefer duration than those that were supported either by government or participants themselves.

Barriers to Participation

Key to the decision to take an adult education or training course was whether people believed the learning activity would benefit them. It was encouraging, therefore, that in many countries participants were found to have high levels of satisfaction with their learning activities and perceived the knowledge and skills they had acquired to be useful in both personal life and work. A large proportion of employed Americans and Canadians, however, saw no need to participate in adult education in order to update their job skills or acquire new knowledge. This disinterested group comprised 47 percent of the adult population in Canada and 46 percent in the United States. Thirteen percent of Canadian and 9 percent of U.S. adults said they needed to participate but did not, most commonly because of lack of money and time.[3]

3. Estimates of the magnitude of the interested and disinterested population groups appear in Chapter 3.

Issues for Future Surveys

As an element of life-long learning, adult education clearly has already become a natural feature of everyday life and work for many people in America.[4] But the findings also indicate that people with relatively little schooling and those with poor literacy skills had a low probability of receiving further education. In fact, the majority of adults in both Canada and the United States were not counted among the participant groups in the mid-1990s. Whether and to what extent this unequal distribution of opportunities to learn in formal settings has changed since then is an important consideration. The international Adult Literacy and Life-skills (ALL) survey, in which besides Canada and the United States about a dozen countries from various parts of the world are participating, will provide the data needed to address this issue in 2003 or 2004.

Country Abbreviations Used in the Report

OECD Countries		OECD Countries	
Australia	AUS	New Zealand	NZL
Belgium	BEL	Norway	NOR
Canada	CAN	Poland	POL
Czech Republic	CZE	Portugal	PRT
Denmark	DNK	Sweden	SWE
Finland	FIN	Switzerland	CHE
France	FRA	United Kingdom	UKM
Germany	DEU	United States	USA
Hungary	HUN		
Iceland	ICL	**Non-OECD Countries**	
Ireland	IRL		
Italy	ITA	Chile	CHL
Netherlands	NLD	Slovenia	SVN

Weighted average for up to 20 countries: AVE

4. See Pugsley (1999) and Tuijnman and Schuller (1999) for a discussion of life-long learning policies, practices and issues for further research for the U.S. and other countries.

CHAPTER 1

Introduction and Overview

The International Adult Literacy Survey was the first comparative assessment of adult literacy skills ever undertaken internationally. Over 75,000 adults from 22 countries were interviewed and tested in their homes in 15 languages between 1994 and 1998. The purpose of the study was to improve understanding of the nature and magnitude of the literacy issues faced by nations. A second aim was to study national patterns of participation in adult education and training, and to investigate the factors that influenced the decision by adults to use the learning opportunities afforded them in various settings—in educational institutions, at work and at home, and across countries. The focus of this monograph is on the adult education data set. Its goal is to make the results of the data collection available to a wide audience.

1. Definition of Adult Education and Training

The data analyses reported in this monograph are based on an internationally accepted definition of adult education. This definition appeared first in the *Recommendation on the Development of Adult Education* (UNESCO, 1976, p.2), adopted on 26 November 1976 by the General Conference of UNESCO at its nineteenth session in Nairobi. It was subsequently reprinted in its entirety in *The International Encyclopedia of Adult Education and Training* (Tuijnman, 1996, p.4). An abbreviated version is given below:

> ... / ... The term "adult education" denotes the entire body of organized educational processes, whatever the content, level and method, whether formal or otherwise, whether they prolong or replace initial education in schools, colleges and universities as well as in apprenticeship, whereby persons regarded as adult by the society to which they belong develop their abilities, enrich their knowledge, improve their technical or professional qualifications or turn them in a new direction and bring about changes in their attitudes or behavior in the two fold perspective of full personal development and participation in balanced and independent social, economic and cultural development; adult education, however, must not be considered as an entity in itself, it is a sub-division, and an integral part of, a global scheme for lifelong education and learning.

Fortunately, UNESCO's definition is very broad and still fits today's notions of lifelong learning. Adult education, as part of lifelong learning, encompasses many kinds of post-compulsory education and training, ranging from formal education in institutions and non-

formal learning at work to informal learning in everyday life. The standard definition of adult education also fits well with the approach to theory and measurement that was adopted for the IALS.[5] The definition of adult education and training applied in IALS was:

> During the past 12 months, that is, since August 19xx, did you receive any training or education including courses, workshops, on-the-job training, apprenticeship training, arts, crafts, recreation courses or any other training or education?

The intent of this question was to collect information about the universe of training and education a person might have been exposed to during the year preceding the interview. The questionnaire also asked for information on up to three educational programs or courses received during the year preceding the interview. If a respondent had taken more than three courses then questions were asked about the three most important ones. However, because of time limitations imposed on the interviews, the questionnaire was not designed to distinguish between different forms of formal, non-formal and informal learning. Hence, for analytical reasons, it was difficult to accurately draw a line between, for example, the initial vocational education of youth and forms of continuing professional training of young adults.

In order to facilitate the international reporting of the data in comparable ways, age 25 was used as a cut off for making the distinction between initial education and adult education. Full-time students aged 16-24 in continuous formal education, including tertiary education, were therefore excluded.[6] Although the standard definition of adult education is inclusive and does not rule out education for senior citizens, for the purposes of this study the within-scope target had to be restricted to the population aged 25-65 years because some countries had used age 65 as an upper limit in their sampling frame. Finally, any education taken that lasted for less than six hours was also excluded. The latter restriction was made in order to avoid counting incidental seminars and workshops of a very brief duration.

2. Timing of Data Collection

In 1994, nine countries—Canada (English and French-speaking provinces), France,[7] Germany, Ireland, the Netherlands, Poland, Sweden[8], Switzerland (German and French-speaking Cantons) and the United States—fielded the world's first large-scale collection of comparative data on literacy and participation in adult education. Data for seven of these countries were published in December 1995. Five additional countries or territories—Australia, New Zealand, the Flemish community of Belgium,[9] Great Britain and Northern Ireland[10]—administered the same instruments in 1996 and published results in November 1997. Finally, nine other countries or regions—Chile, the Czech Republic, Denmark, Finland, Hungary, Italy, Norway, Portugal, Slovenia and the Italian-speaking region of Switzerland[11] —

5. The questionnaire module that was used to gather the adult education data is included in Annex C. The module shown formed part of the American background questionnaire.
6. As noted in previous international IALS reports, a sampling anomaly involving U.S. college students limits the comparability of the United States data set for the age group 16-24. Possible discrepancies arising from this anomaly do not affect the estimates reported in the present monograph because the concerned population is excluded from the data analysis for all countries.
7. France withdrew its data in November 1995, after the comparative results had become available, citing concerns about comparability. The French results are therefore not included in this monograph. A new data collection was undertaken in France in 1998 as part of a European Union financed research study that applied the same methods and the same test instruments as were used in the original IALS. The results of this study are reported in ONS (2000).
8. In Sweden, several questions deemed to be of high national interest were added to the instrument and hence other questions were dropped in order to respect total interview time. Consequently, because of comparability constraints Swedish data could not be used for all indicators.
9. Excluding the population of the Brussels metropolitan area.
10. Data for Great Britain and Northern Ireland were combined into a single estimate representing the whole population of the United Kingdom.
11. Data for the French-, German- and Italian-speaking populations of Switzerland were combined into a single estimate for the whole country.

participated in a subsequent wave of comparable data collection in 1998. Results for these latter countries became available first in June 2000. Results for 20 of the above countries are presented in this monograph.[12]

The data presented in this report were collected by the countries participating in successive cycles of data collection between 1994 and 1998, using nationally representative samples of the population aged 16-65. Because the indicators calculated for this report primarily concern participation in adult education, it was decided to exclude the population aged 16-24 from the analysis (see above).

The fact that some countries collected data a few years earlier or later than others must be noted. Even though it is assumed that population profiles of adult education participation change only slowly with the passing of time, there can be no guarantee that sudden fluctuations might not occur. Whereas the literacy profiles of nations are known to be quite stable over time, there is no similar evidence about the stability of rates of participation in adult education. Hence it is possible that external factors—for example, a sudden, deep recession—could influence national patterns of adult education. National policies can also make a significant impact on annual rates of participation. For example, the Swedish action plan, *Kunskapslyftet* (The National Adult Education and Training Initiative), which was established in June 1997 for a five-year period, has already dramatically increased the annual participation rates of population sub-groups such as the unemployed and the poorly educated in the country.

Although the indicators of adult education included in this monograph assess the situation at only one point in time in the recent past of the nations surveyed, it is acknowledged that the patterns and conditions discovered in the data will result from ambitions and processes, both economic, social and cultural, that have been building for a long time. Thus the comparative analysis provides a baseline for assessing the accomplishments of adult education in North America that should be set against the backdrop of historical movements and political ideals. For all of the above reasons, the estimates presented in this report are best interpreted as indicators of the probable level and distribution of adult education participation.

3. Study Design

The data were collected in people's homes by experienced interviewers. The design used for IALS combined educational assessment techniques with methods of household survey research. In brief, respondents were first asked a series of questions to obtain background and demographic information. Once this background questionnaire was completed, the interviewer presented a booklet containing six simple tasks. If a respondent failed to complete at least two of these correctly, the interview was adjourned. Respondents who completed two or more tasks correctly were then given a much larger variety of tasks, printed in a separate booklet. The assessment was not timed, and respondents were urged to try each exercise. Respondents were thus given maximum opportunity to demonstrate their skills.

Multiple quality control measures were implemented throughout the course of the study in order to ensure that high-quality data would be obtained. Annex B describes the measures taken to improve data quality and addresses specific issues concerning validity, reliability and comparability. In each successive round of data collection, quality assurance procedures were enhanced and extended in response to identified problems. The initial design assumption in IALS was that instrument adaptation, particularly of the assessment instruments, was the design element that carried the most inherent risk. Thus, most quality assurance procedures deployed in the first round of collection were devoted to the instrumentation aspects of the study. In later rounds, however, more attention was devoted to the operational aspects of managing a household survey as part of a large-scale comparative study (Murray *et al.*, 1998).

12. Besides France, Germany is also excluded from the analysis because the survey did not ask about education and training in a comparable way.

All social surveys are subject to both sampling errors and non-sampling errors. Sampling errors refer to differences between the estimates obtained from a sample and results obtained from a complete count. Non-sampling errors arise from imprecision in the measurement instruments and variation introduced during the various phases of survey implementation: interviewers misunderstand instructions, respondents make errors of interpretation, data entry personnel miss keystrokes, or analysts make processing mistakes, etc. The first type of error is reported through standard errors and the coefficient of variation.[13] Wherever it was possible to do so, coefficients of variation were computed for the estimates reported in the statistical annex to this monograph. Further, the averages reported in charts and tables were adjusted for population size—i.e., countries with a higher population count have a higher weight on the average than small countries.[14]

During each stage of the data collection,[15] steps were taken to minimize the magnitude of the second type of measurement error, thus leading to improved data quality. A review conducted by three independent experts concluded that despite some identified survey weaknesses that could be improved in further rounds of data collection, the survey results should be published (Kalton *et al.*, 1998). As part of an independent evaluation study undertaken by the Office of National Statistics of the United Kingdom (ONS, 2000), a repeat data collection was undertaken in several European countries using the same instruments together with "best practice" survey methods and the use of incentives to improve response rates. The estimates resulting from this repeat exercise were for all intents and purposes similar to those obtained in the original collection (OECD and Statistics Canada, 2000), suggesting adequate robustness in the original IALS data set for the countries concerned.

4. Survey and Research Team

IALS was a large-scale co-operative effort by governments, national statistical agencies, research institutions and the Organisation for Economic Co-operation and Development (OECD). Overall responsibility for the study was shared between Mr. T. Scott Murray and Ms. Nancy Darcovich of Statistics Canada and Mr. Albert Tuijnman, formerly of the OECD. The development and implementation of the survey were coordinated by Statistics Canada and the Educational Testing Service (ETS) of Princeton, New Jersey. Mr. Irwin Kirsch and Mr. Kentaro Yamamoto were ETS Project co-Directors. Ms. Marilyn Binkley of the National Center for Education Statistics (NCES) was the National Study Director for the U.S. component of the study. Mr. Stan Jones, consultant to Statistics Canada, acted as International Project Advisor.

Data collection constituted the largest cost to the countries that participated in the IALS program of work. Most paid the full cost of data collection[16] and adhered to the international data collection guidelines specified by Statistics Canada and ETS. The costs of the international co-ordination, data analysis and reporting for the first survey cycle were covered principally by the Canadian Government and NCES. In further cycles the participating countries were required to assist in offsetting some of the international overhead costs. Limited funding was also obtained from the European Union and the OECD. NCES and the Division of Adult Education and Literacy, Office of Vocational and Adult Education of the U.S. Department of Education funded the national study in the United States.

13. The coefficient of variation is obtained by dividing the standard error of the estimate by the estimate itself and is expressed as a percentage of the estimate itself (the result multiplied by 100).
14. Because of its comparatively large population size the United States has a high weight in the data analysis. Hence the estimates for the country tend to be close to the averages.
15. The IALS sample selection procedures, survey response and non-response rates, scoring and data entry methods, and weighting, post-stratification and data imputation methods are described in OECD and Statistics Canada (2000, pp. 107-121) and in Murray *et al.* (1998).
16. Chile and Poland received limited financial support from UNESCO and Slovenia did the same from the World Bank.

5. Organization of this Monograph

This monograph presents indicators of adult education participation for the populations of 20 nations. The results were computed at Statistics Canada and the Institute of International Education at Stockholm University by analysts using sophisticated but recognized procedures for the calculation of population and sub-group mean scores and standard errors. The reported indicator values are consistent with those published previously in *Education at a Glance* (OECD, 2000), the IALS final report (OECD and Statistics Canada, 2000) and in a comparative report on adult education participation commissioned by the Nordic Council of Ministers.[17]

The next chapter presents 15 indicators that can be used for assessing aspects of participation in adult education in North America against the backdrop of the training efforts expended by other nations, the majority of them economically advanced Member countries of the OECD. The final chapter presents considerations for policy analysis and further research.

17. The study commissioned by the Nordic Council of Ministers addressed two principal aims. The first was an attempt to establish the status and reach of adult education and training provision in the Nordic countries, in absolute terms but also in comparison with other countries. The second aim was to shed light on the question whether there are any specifically "Nordic" ways of planning and implementing adult education policies: Are there any features that define a "common" approach to adult education, one that sets the Nordic countries apart from other advanced regions in Europe and North America? The study concluded that defining dimensions of a 'Nordic Model' of adult education can indeed be identified (Tuijnman and Hellström, 2001).

CHAPTER 2

Fifteen Indicators of Adult Education in America

This chapter presents fifteen international indicators of participation in adult education and training that allow comparisons to be made between populations and sub-groups and across nations in America and Europe.

The first two indicators (1-2) are used to examine the overall incidence and intensity of adult education participation measured in terms of training rates and hours. Each tells its own side of a story about the overall training efforts of nations. They should be considered together because nations that score high on participation rates may achieve this result by spreading the available adult education resources more thinly over the population, so that more people have an opportunity to take part but on average for fewer hours. Conversely, there are nations with lower participation rates but those who take part in adult education do so for more hours on average. Both indicators combined give a more accurate baseline for comparing the total adult education effort of nations.

The four following indicators (3-6) present the rates of participation of specific sub-groups. These indicators can be interpreted as measures of the demand for training, allowing readers to examine the distribution of training demand among different social groups compared with the general population. The groups studied are those with lower educational attainment, women in mid-career, older workers, and the unemployed population.

The next four indicators (7-10) present results about several aspects of education and training supply rather than demand. The goal is to give the reader a general idea of who is offering adult education and training and to whom. The analysis is focused on four dimensions of supply: economic sectors employing blue-collar low-skilled workers and white-collar high-skilled workers, employer support for training, odds of receiving employer-sponsored training, and the training efforts of medium-sized firms.

The last set of indicators (11-15) is used to study the "long arm of the job" and the influences of the social environment on adult education participation. Many adults probably have good reasons for not taking any courses. Perhaps some simply do not wish to participate for personal reasons, but others may be confronted with barriers that are not of their own choosing. For example, obstacles to adult education and training can arise because of time constraints or financial factors. An analysis of main determinants and barriers to participation can be illuminating because public policy can impact on some of them. But in the final analysis, as shown in Indicator 15, participation is also related to popular culture – an element of the "social capital" of nations.

The underlying data values for all 15 indicators are reported in Annex A, *National Scores and Standard Errors*. Readers are advised that, where possible, the standard errors of the estimates are provided in the data tables. These errors should be taken into account when comparing national scores. To facilitate this, the countries in the graphs presented in this chapter are grouped into three categories:

(A) Nations with training rates – or mean hours – significantly higher than the United States;

(B) Nations with training rates – or mean hours – not significantly different from the United States;

(C) Nations with training rates – or mean hours – significantly lower than the United States.

People take part in adult education for a number of reasons. Adult education allows participants to gain new knowledge and upgrade and complement their skills, whether for instrumental reasons related to the present job or a future career or for intrinsic reasons related to pursuit of personal interests and the enjoyment of life. In the economically advanced countries, adult education has become an important phenomenon, both in terms of the number of people involved and the total amount of learning effort and money spent. But adult education is not only – or even primarily – a consumption good. The vast majority of adult education participants in the countries surveyed as part of IALS classified their learning endeavors as related to their job, and hence as an investment in employability skills that would be expected, with time, to yield both economic and social returns. Overall rates of participation in both general and job-related adult education and training are therefore important indicators of investment in human and social capital.

Care should be taken in interpreting the indicators presented in this chapter, particularly in ascribing any normative judgements about the sufficiency of investments in human and social capital by governments, employers or individuals and their families.

Education structures, including those serving adults, reflect the attempts made by policy makers over many years to balance the economic demand for skill and the social demand for education.[18] Thus, where the demand and supply of education and skill are roughly in equilibrium, relatively low levels of investment in adult education and training will be observed. Conversely, the highest rates of participation are often observed in countries and economic sectors where technological and structural changes have precipitated a substantial increase in the demand for skills – a demand that cannot be met, or at least not in the short term, by increasing the quantity and quality of initial education at the primary, secondary or tertiary levels. In such a scenario, the only way to satisfy the demand for new or higher levels of skill is to engage significant proportions of adults in learning activities.

It must further be noted that some of the observed variations between countries can be attributed to fundamental differences in social and cultural attributes, and to values and attitudes related to education. Even historical factors can influence the observed relationships, for example, the points in time at which countries actually achieved universal primary education or moved toward universality in secondary certification.

1. Rate of Participation in Adult Education

Figure 1 presents the rate of participation in all adult education and training activities, for the general population aged 25-65. The annual average rate of participation across the 20 countries included in the analysis was 34 percent for the year preceding the interview. Denmark, Finland and Sweden had a participation rate exceeding 50 percent, while Poland and Portugal had rates below 15 percent. The comparable rates were 35 percent for Canada and 39 percent for the United States. The value for the United States was significantly higher than the (weighted) average; but for Canada there was no significant difference. The U.S. adult population had a similar rate of participation than Switzerland and the United Kingdom, but the populations of New Zealand and Norway scored significantly higher.

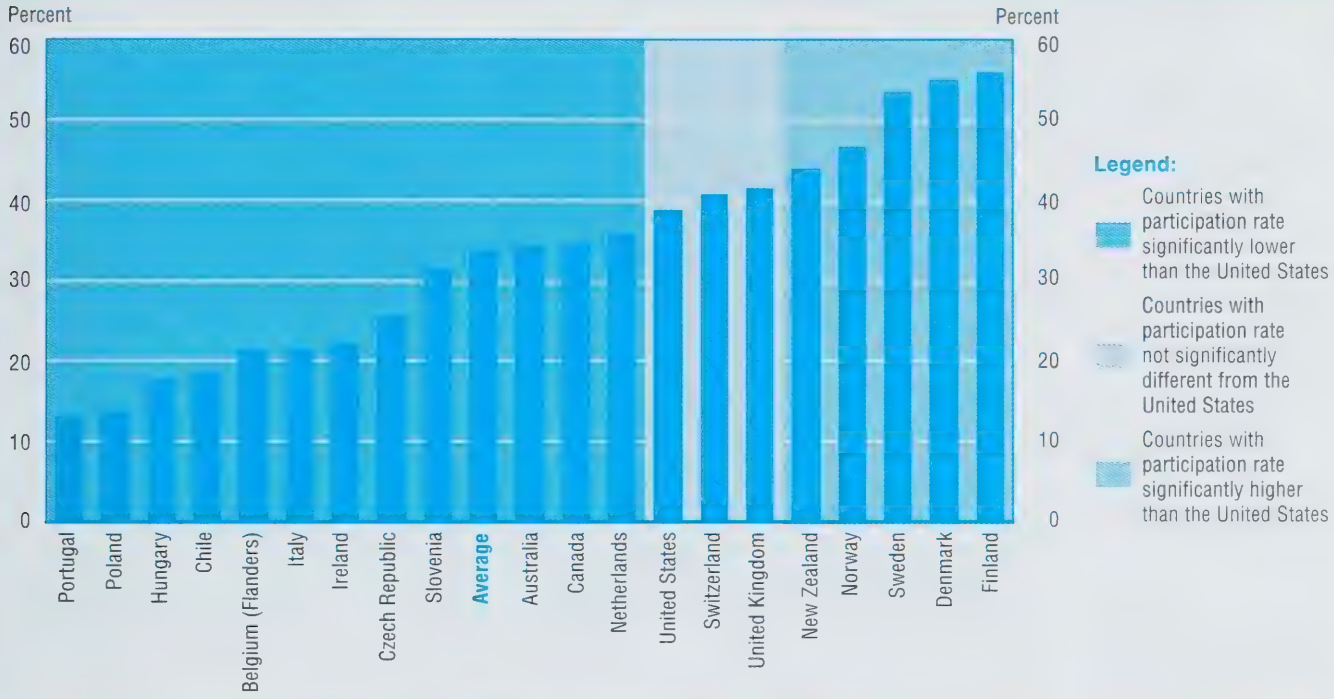
In Table 1 in Annex A, participation rates are presented for the employed population. It can be seen that the overall ranking of the countries was similar although the participation rates were higher. On average the participation rate for the employed population was 7 points higher than for the general population.

18. For recent discussions on issues of skill demand and supply and the under- or over-investment in human capital by nations, see Ashton and Green (1996), Ashton *et al.* (1999); Hartog (2000), and Oosterbeek (1998).

FIGURE 1

PARTICIPATION IN ADULT EDUCATION AND TRAINING

Rate of participation in adult education and training, population aged 25-65, 1994-1998



COUNTRIES ARE RANKED BY THE RATE OF PARTICIPATION.

Note: Statistical difference is significant at $p < .05$.

Source: International Adult Literacy Survey, 1994-1998.

2. Hours of Adult Education and Training

Figure 2 presents an indicator of adult education and training volume. It shows the mean number of hours spent on adult education and training activities per participant. In Canada participants aged 25-65 spent on average 215 hours on adult education and training. A quite different picture appeared for the U.S. population, where the average was only 120 hours. But readers should be alerted that the standard errors of these estimates were very large for Canada but relatively small for the United States, thus casting some doubt on the real magnitude of the difference between the two countries. Contrary to the participation rate, the average volume across countries (143 hours) was significantly higher than that of the United States. Adult education volume per participant was the same in Belgium (Flanders), Poland, Switzerland and the United Kingdom. But many other countries had a significantly higher training duration than the United States, ranging from 171 hours in Australia to 234 hours in Ireland. Education and training duration was also high, above 200 hours, in Chile, Denmark and New Zealand.

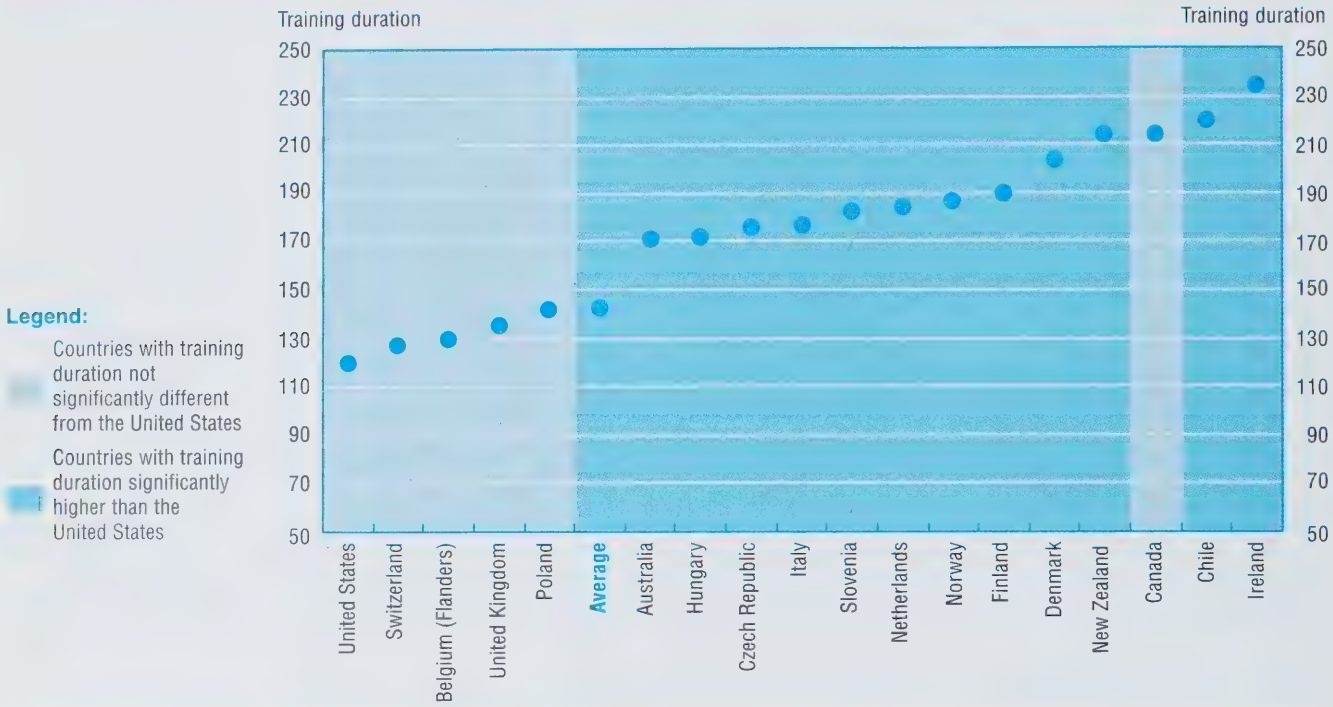
A weighted indicator would examine not only the average number of hours per participant but also the average number of hours per adult aged 25-65. The relevant volume per-capita estimates[19] are included in Table 2 in Annex A. For the United States the estimates suggest that the country (46 hours) ranked with the average (48 hours) across the countries. This result was a direct consequence of a relatively high U.S. rate of participation combined

19. Mean number of hours per capita = Mean number of hours per participant x participation rate / 100.

FIGURE 2

HOURS OF EDUCATION AND TRAINING PER ADULT

Mean number of hours spent on adult education and training per participant, population aged 25-65, 1994-1998



COUNTRIES ARE RANKED BY THE MEAN NUMBER OF TRAINING HOURS.

Note: Statistical difference is significant at $p < .05$.

Source: International Adult Literacy Survey, 1994-1998.

with a low ranking on the volume of training. With 74 training hours per capita, Canada scored well above average on this indicator. At the top of the league, Denmark and Finland had more than 100 hours of adult education and training per capita – equivalent to every adult aged 25-65 spending on average 2.5 working weeks in organized education activities. Figures were high also in New Zealand (94 hours) and Norway (87 hours), whereas in Poland every adult obtained on average less than 20 hours.

3. Adult Education for Those With Lower Educational Attainment

It is known from previous research conducted both in Canada (Rubenson and Xu, 1997; HRDC and Statistics Canada, 2001) and in the United States (Cross, 1981; Comings *et al.*, 2000) that popular demand for adult education and training co-varies with a number of demographic and socio-economic characteristics. Examples of factors that usually show statistically significant relationships with participation in adult education are aspects of participation motivation (Figure 11 and 12), earnings from work (Figure 13), and labor force participation and occupational status (Figure 14). But the one factor that is most strongly and consistently related to adult education participation, both between countries (Doray and Arrowsmith, 1997; Kapsalis, 1997) and longitudinally over time (Tuijnman, 1989), is the level of initial educational attainment.

Figure 3A-B presents evidence from the IALS about the relationship between initial educational attainment and adult education participation across countries. Overall, there was a clear-cut and strong relationship between the two, with participation rates increasing

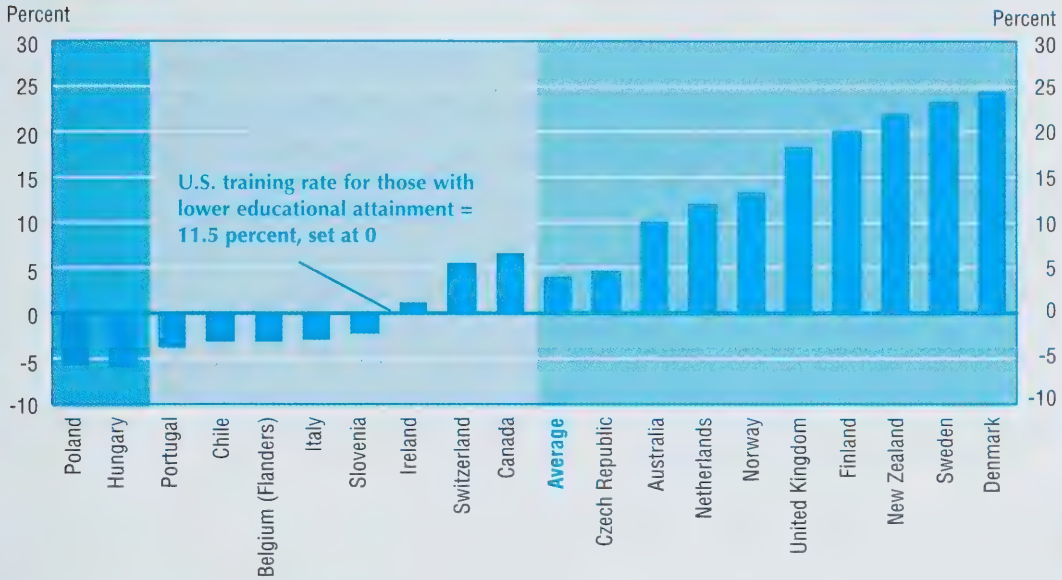
consistently with increasing level of education. In all countries, those with lower educational attainment participated less frequently than the well educated. But there were important differences between countries in the extent to which those with more initial education also received more adult education.

FIGURE 3

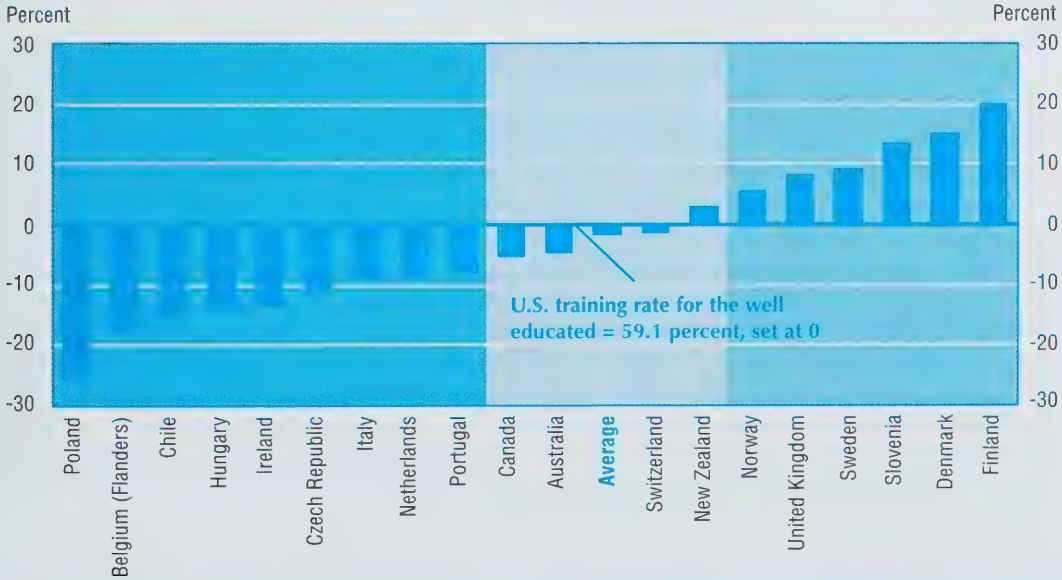
TRAINING RATE BY EDUCATIONAL ATTAINMENT

Rate of participation in adult education and training of general population aged 25-65 without completed high school or equivalent and population aged 25-65 with some college or university education, 1994-1998

A. Training for those with lower educational attainment



B. Training for the well educated



Legend:

- Countries with training rate significantly lower than the United States
- Countries with training rate not significantly different from the United States
- Countries with training rate significantly higher than the United States

COUNTRIES ARE RANKED BY THE DIFFERENCE TO THE UNITED STATES. RATES FOR CANADA AND SWITZERLAND IN GRAPH A APPEAR HIGHER THAN THOSE FOR THE CZECH REPUBLIC AND THE AVERAGE BUT THEY ARE NOT SIGNIFICANTLY DIFFERENT FROM THE U.S. RATE.

Note: Statistical difference is significant at $p < .05$.

Source: International Adult Literacy Survey, 1994-1998.

Figure 3A shows participation rates for adults aged 25-65 without completed high school or equivalent. In the graph the U.S. participation rate for this poorly educated group (11.5 percent) is set at zero, so that the results for the United States can be readily compared to those of other countries. It will be seen that the participation rate for those with lower educational attainment in the United States was among the lowest of the populations and countries investigated. Only Hungary and Poland had a participation rate among those with lower educational attainment that was significantly lower, with a difference of about five points. However, the participation rate among poorly educated Americans was not significantly different from similarly educated adults in Belgium (Flanders), Canada, Chile, Ireland, Italy, Portugal, Slovenia and, finally, Switzerland. The average educational participation rate of those with lower educational attainment across all countries was slightly but significantly higher than the comparable rate among Americans and Canadians. In stark contrast with both Canada and the United States, participation rates among those with a low level of initial education were much higher in Denmark, New Zealand and Sweden, with a difference of 20 points or more.

Figure 3B counterbalances the results of the previous analysis by showing the rates of participation in adult education among the well educated, defined as all adults aged 25-65 who had received some college or university education. In the United States this group had a participation rate of 59 percent, compared with 12 percent for those without a high school diploma. Like the previous graph, to facilitate easy comparison with other countries the participation rate of the U.S. well-educated population was set at zero. The difference from the other graph is easy to see: the participation rate among the well educated in the United States was among the highest; in about half of the countries the participation rate was significantly lower. The differences between Canada, the United States and the average across all countries were not significantly different from zero.

Another way of looking at the difference in participation rates by levels of educational attainment is by using odds ratios.[20] OECD and HRDC (1997, p. 95) shows that the likelihood of participating in adult education of an American citizen with a university degree was 15.7 times as large as that of an American with elementary schooling as the highest educational credential. Thus, it would seem, adult education was not for all, but for the already educated. (Coming *et al.* 2000) suggest that the adult education gap between the poorly and well educated has widened in recent years. In Scandinavia, in contrast, the effort to reduce the "education gap" has become a central—and judged by the results comparatively successful—part of public policy. Such explicit policy goals are, however, less common in both North America and most European countries.

4. Women's Share of Adult Education Provision

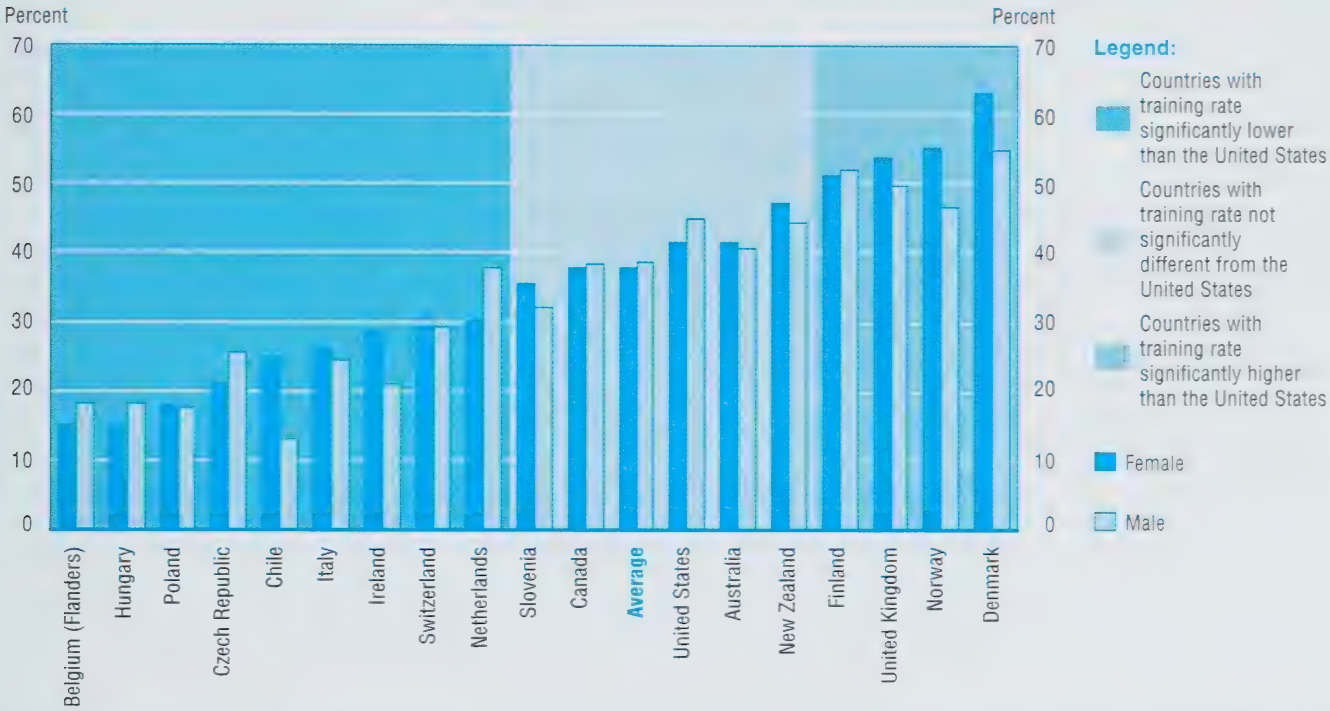
In most countries, the overall rate of participation of men and women is quite similar. Figure 4 presents the job-related participation rate of employed women in mid career (aged 36-45) with that of men in the same age bracket. The training rates for Canadian and American men and women are not significantly different from the average across the countries, a pattern confirming the results shown previously in Figure 1. For both countries, the difference in job-related training rates for men and women was less than 5 points, a difference that was not statistically significant. Only four countries had job-related training rates for those in mid career that were higher than those in North America: Denmark, Finland, Norway, and the United Kingdom. Although the differences in job-related training rates between men and women were mostly small and insignificant, women clearly tended to receive less employer support for training than men in most countries (see Indicator 8).

20. With odds ratios, differences are expressed in terms of the likelihood of various groups participating in adult education and training. Coefficients with values larger than 1 indicate an increased chance. See Box 1 presented further in this Chapter.

FIGURE 4

TRAINING RATE FOR WOMEN IN MID CAREER

Rate of participation in job-related training by gender, employed population aged 36-45, 1994-1998



COUNTRIES ARE RANKED BY THE RATE OF PARTICIPATION FOR WOMEN. THE STATISTICAL DIFFERENCE TO THE UNITED STATES IS COMPUTED FOR THE WOMEN.

Note: Statistical difference is significant at $p < .05$.

Source: International Adult Literacy Survey, 1994-1998.

The estimates provided in Table 4 in Annex A also allow for a comparison of training rates between those in mid career and the employed population aged 25-65. For both Canada and the United States the differences between these population groups by sex were not statistically significant. As in most other comparison countries, these results were obtained because higher training rates of young men and women were balanced against lower training rates of older men and women.

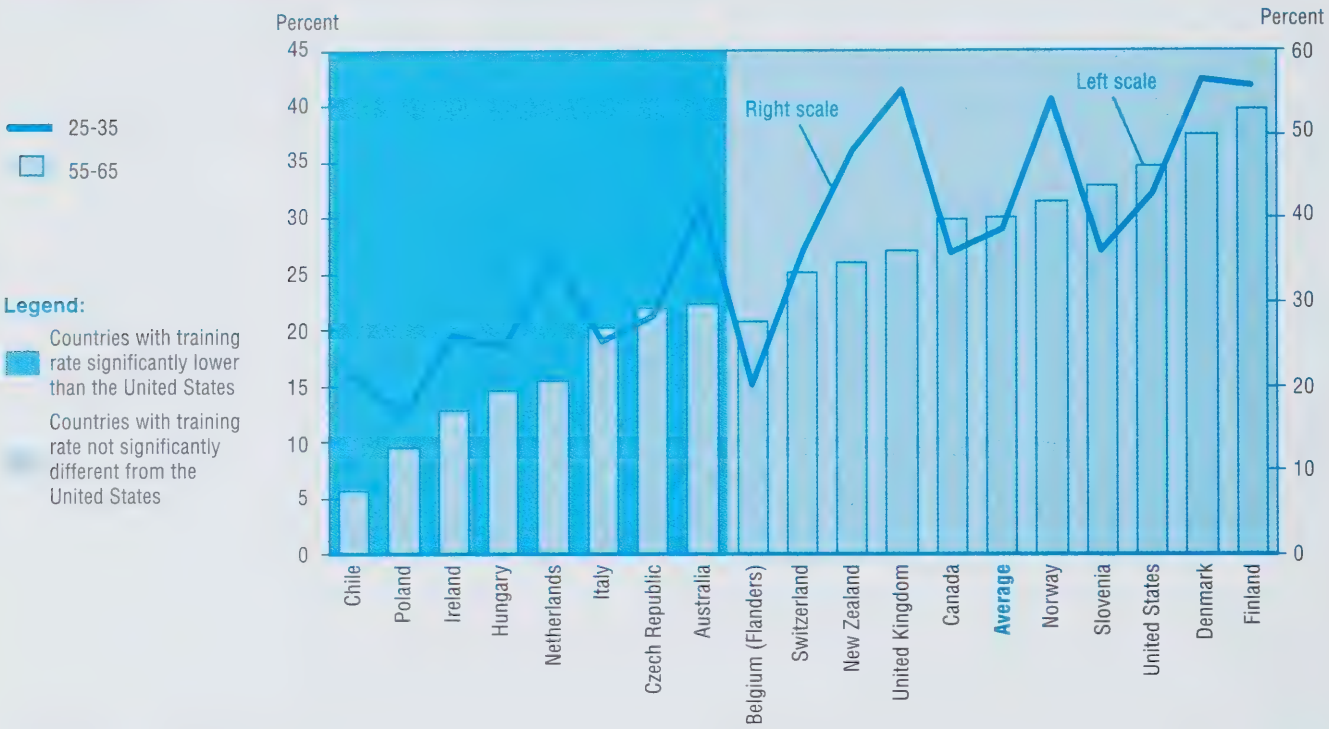
5. Adult Education and Training for Older Workers

As can be inferred from the above, both the incidence and intensity of adult education participation varied by age. The general pattern was for older age groups to have lower participation rates than younger age groups. Figure 5 shows the rates of participation in job-related adult education and training for older employees (55-65 years of age) compared with younger employees (25-35 years of age). In all countries but Belgium (Flanders), the participation rate declined steadily with increasing age. The rate of job training for the older age group ranged from 6 percent in Chile to 40 percent in Finland. The comparable range was from 16 to 56 percent for young adults. The difference in training rates between the two generations was from slightly positive in Belgium (Flanders) to hugely negative in the United Kingdom, with a 28-point difference separating the two generations. By this relative standard, therefore, the U.S. gap of 8 points was low, even if Canada's was still lower. With 35 percent the participation rate of older U.S. employees ranked higher than most countries, and the difference was statistically significant in more than half of the countries.

FIGURE 5

TRAINING RATE FOR OLDER EMPLOYEES

Rate of participation in job-related training, employed population aged 25-35 and 55-65, 1994-1998



COUNTRIES ARE RANKED BY THE RATE OF PARTICIPATION FOR THE POPULATION AGED 55-65. THE STATISTICAL DIFFERENCE TO THE UNITED STATES IS COMPUTED FOR THE POPULATION AGED 55-65.

Note: Statistical difference is significant at $p < .05$.

Source: International Adult Literacy Survey, 1994-1998.

6. Adult Education For the Unemployed

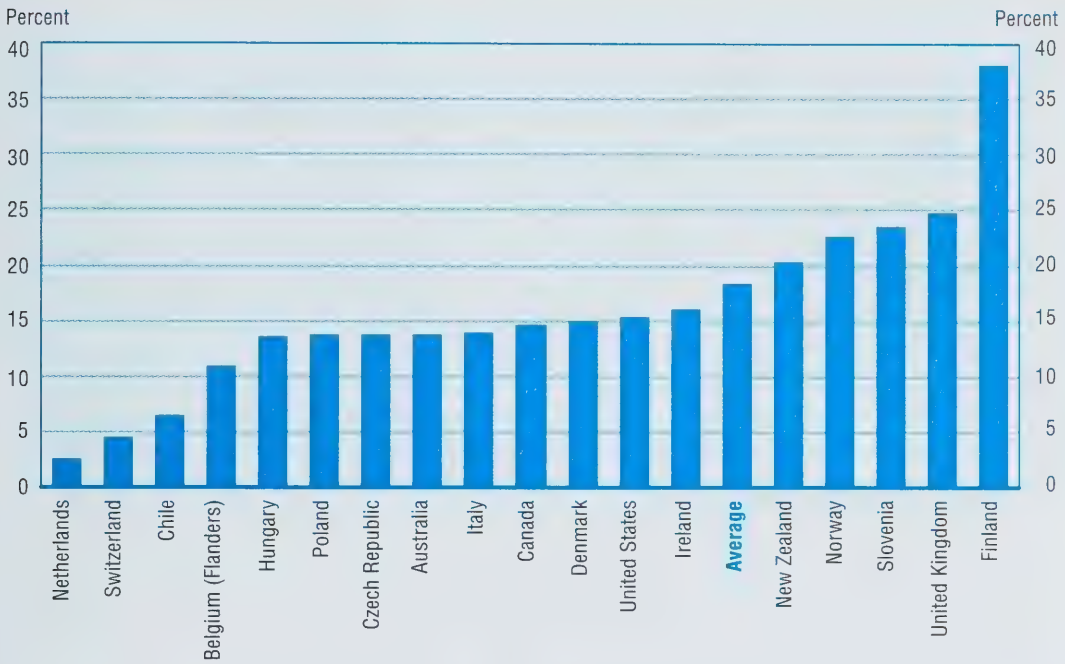
Unemployment rates are sensitive to the business cycle. Such rates tend to be lower at times of higher business confidence and adequate economic growth. Training rates for the unemployed will therefore vary across countries in relation to the stage of the business cycle and the size of the unemployed population.

In the majority of countries, there was a substantial difference between the employed and the unemployed in the rate of participation in job-related education and training. Figure 6 presents empirical evidence on this difference. It was particularly large in Finland, with 38 percent, whereas it was small in the Netherlands and Switzerland, with values below 5 percent. The spread in the values between the countries must be considered remarkable. Canada and the United States, however, both appeared in an average position, with differences around 15 percent. The data provided in Figure 6 referred to the labor force aged 25-65. These estimates therefore masked the fact that, in most countries, the difference in job-related training rates between the employed and unemployed populations tends to grow with increasing age, to the cumulative disadvantage of the unemployed. In both Canada and the United States, as in most European countries except Scandinavia, only small proportions of older adults who were unemployed received job-related training (OECD and Statistics Canada, 2000). Yet adult education can offer not only a means for older people to gain new job skills, it can also be seen as a precautionary measure, one that prevents people from being unemployed in the first place.

FIGURE 6

TRAINING RATE FOR THE UNEMPLOYED

Difference of rate of participation in job-related training between employed and unemployed populations aged 25-65, 1994-1998



COUNTRIES ARE RANKED BY THE DIFFERENCE BETWEEN THE EMPLOYED AND UNEMPLOYED POPULATIONS. NO STANDARD ERRORS ARE REPORTED.

Source: International Adult Literacy Survey, 1994-1998.

Employers play an important role in the Canadian as well as the U.S. adult education market. Not only are they major providers of training themselves but they are also a major source of funding. Further, employers are the clients and beneficiaries of the skills their trained workers bring to the job.

Employers therefore play a pivotal role in the training market. This applies not only to private firms but also to public employers and organisations. Four aspects of training supply and support for workforce education are examined below.

7. Training for Blue- and White-Collar Workers

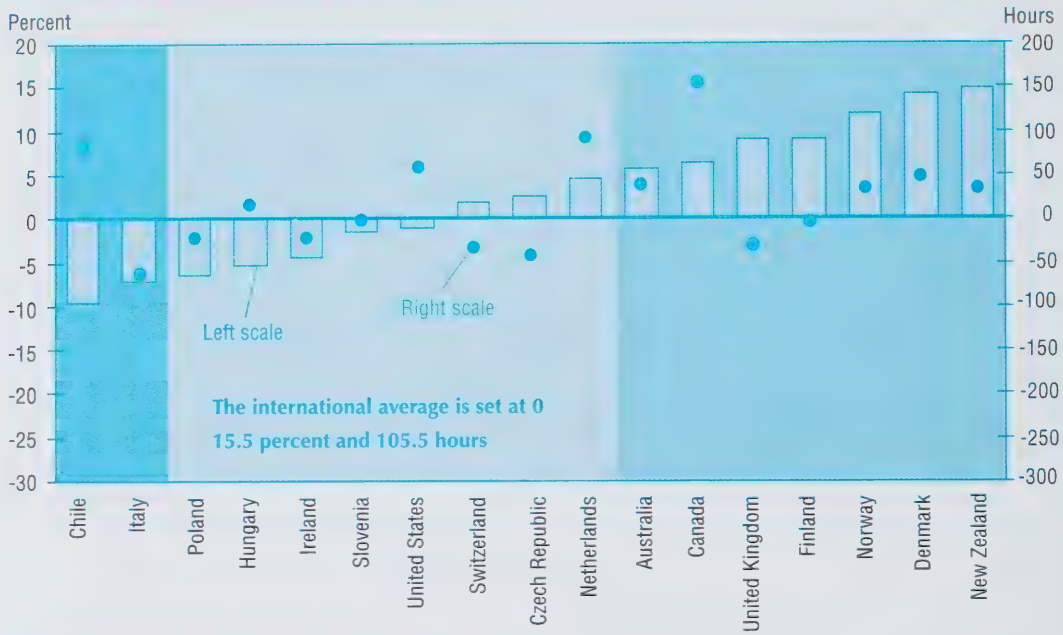
Figure 7A-B presents evidence on the participation rate and average duration measured in hours of job-related adult education and training for the population employed in blue-collar and white-collar sectors of economic activity. The IALS data generally indicated a clear-cut and strong relationship between training effort and occupational category. Across countries, white-collar high-skill workers on average participated 3 to 4 times more often in job-related training than blue-collar low-skill workers. Average training duration was also somewhat higher for workers in white-collar high-skill occupations. In Figure 7A-B, participation rates and training hours are compared relative to the weighted country average so that the different patterns can be portrayed clearly.

FIGURE 7

TRAINING RATE BY OCCUPATIONAL CATEGORY

Rate of participation and average duration in hours of job-related adult education and training, employed population aged 25-65 by occupational category, 1994-1998

A. Training for blue-collar low-skill workers



Mean number of hours per participants

Participation rate

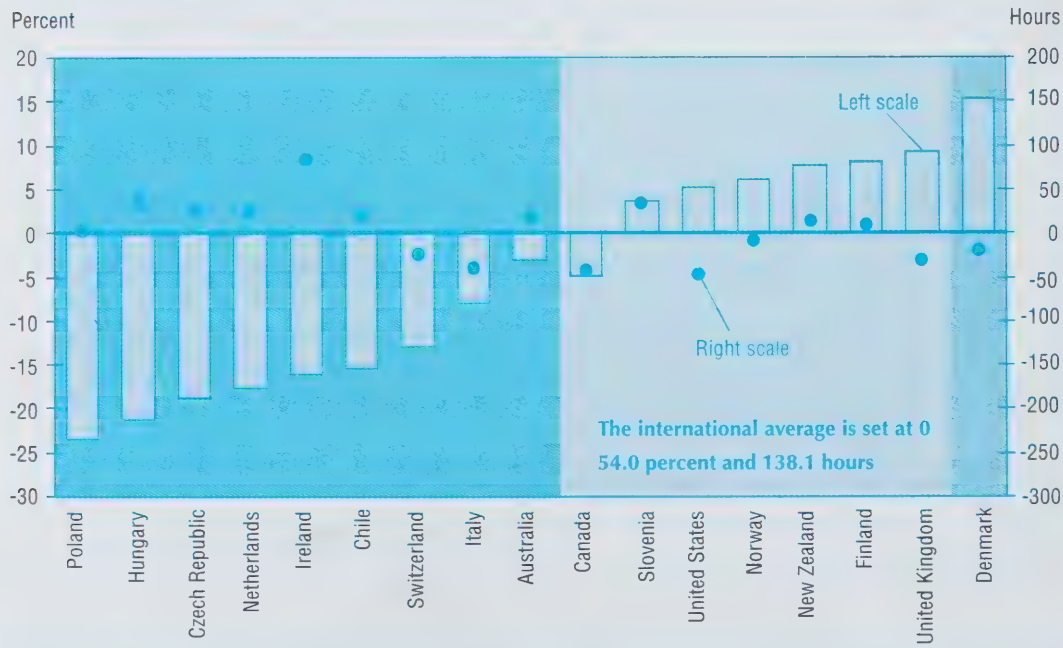
Legend:

Countries with participation rate significantly lower than the United States

Countries with participation rate not significantly different from the United States

Countries with participation rate significantly higher than the United States

B. Training for white-collar high-skill workers



COUNTRIES ARE RANKED BY THE DIFFERENCE FROM THE AVERAGE PARTICIPATION RATE. THE STATISTICAL DIFFERENCE TO THE UNITED SATES IS COMPUTED FOR THE PARTICIPATION RATE.

Note: Statistical difference is significant at $p < .05$.

Source: International Adult Literacy Survey, 1994-1998.

Figure 7A shows job-related participation rates and average training duration in hours for blue-collar low-skill workers. It can be seen that the U.S. rate was closest to the international average, set at zero. Blue-collar low-skill workers in New Zealand had a high rate of participation (30.4 percent; see Table 7 in Annex A). Relative to the country average of 15.5 percent, blue-collar low-skill workers in New Zealand had a much higher probability of being trained than such workers in more than half of the countries. In fact, the participation rate for blue-collar low-skill workers in New Zealand was the same as that for white-collar high-skill workers in Poland (30.6 percent; see Table 7 in Annex A). Only two countries – Chile and Italy—had significantly lower participation rates than the United States. In turn, the participation rate of blue-collar low-skilled workers in the United States was significantly lower than that of comparable Canadian workers. Australia, Denmark, Finland, New Zealand, Norway and the United Kingdom also had significantly higher participation rates than the United States.

The distribution of training volume showed a more diverse pattern across countries. Training volume for blue-collar low-skill workers ranged from 262 hours in Canada to 43 hours in Italy. However, the U.S. training volume of blue-collar workers was well above the average, with about 60 hours more of training—four times more than, for example, Italy. Readers should note, though, that the standard errors of the volume estimates for blue-collar workers were high for both Canada and the United States. For white-collar high-skill workers the standard errors were lower and also the range was narrower – from 93 hours in the United States to 222 hours in Ireland.

Figure 7B shows participation rate and average duration in hours of job-related training for white-collar high-skill workers. The general pattern was quite different from the one considered previously. Denmark was the only country that had a significantly higher rate of participation than the United States, while about half of the countries, including Australia, the Netherlands and Switzerland, had significantly lower rates. The training rates were practically the same for Canadian and U.S. white-collar high-skill workers. But, with 93 hours, the training volume for such workers was the lowest in the United States, followed closely by Canadians. Hence, U.S. and Canadian white-collar high-skill workers appear to receive training more often than blue-collar low-skill workers but with a comparatively lower duration of training. In contrast, blue-collar workers in North America have a lower probability of receiving job training, but when they do they tend to study for a longer period of time.

8. Stakeholder Support for Adult Education

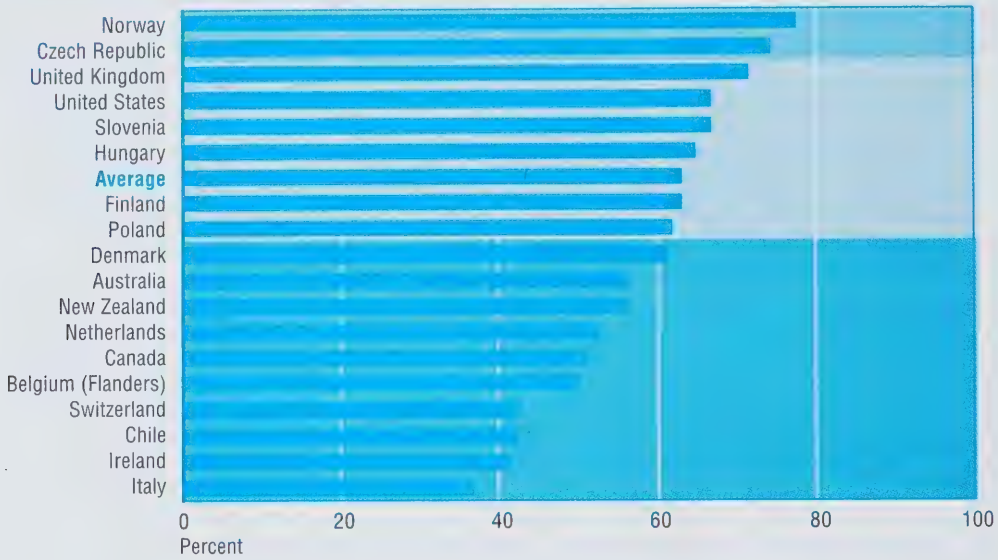
In all countries for which data are available at least half of all participants in adult education and training who were employed attended an employer sponsored course. In most countries the proportions receiving employer support for training were even higher than this.

Figure 8A-B shows percentage of adult education participants in the general population aged 25-65 who received financial support for the education or training they took from either the government, an employer, or themselves and their family. Figure 8A shows the predominant role of employers in supporting adult education and training in many countries. When comparing the country percentages in Figure 8A with those in Figure 8B, it will be seen that participants said they had received financial support for education and training from their employer roughly twice more often than they mentioned self or family support, and six times more often than they mentioned having obtained financial support from government or public agencies.

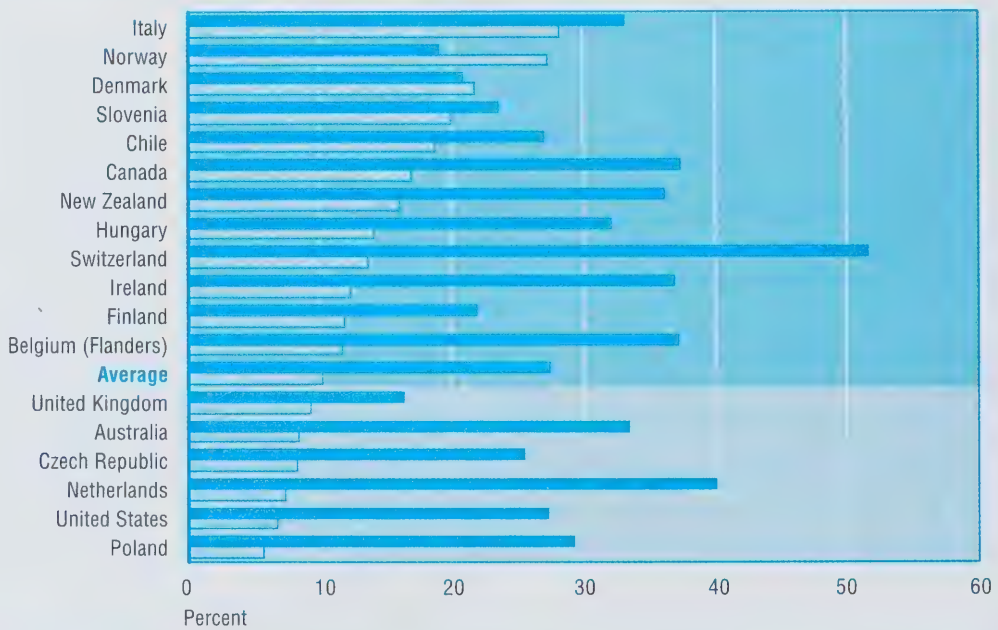
FIGURE 8

STAKEHOLDER SUPPORT FOR TRAINING

A. Percentage of adult education participants aged 25-65 who said they had received financial support from their employer, 1994-1998



B. Percentage of adult education participants aged 25-65 who said they had received financial support from the government or from their family, 1994-1998



Legend:

- Countries with financial support significantly lower than the United States
- Countries with financial support not significantly different from the United States
- Countries with financial support significantly higher than the United States
- Self or family support
- Government support

A. COUNTRIES ARE RANKED BY EMPLOYER SUPPORT.

B. COUNTRIES ARE RANKED BY GOVERNMENT SUPPORT. THE STATISTICAL DIFFERENCE TO THE UNITED STATES IS COMPUTED FOR GOVERNMENT SUPPORT.

Note: Statistical difference is significant at $p < .05$.

Source: International Adult Literacy Survey, 1994-1998.

Figure 8A shows the percentage of all adult education participants who said they had received financial support for training from their employer. U.S. employers scored high on this measure, similar to U.K. and Slovenian employers, and significantly higher than Canadian employers. Only participants from the Czech Republic and Norway said they had received financial support from their employer significantly more often than participants in the United States. Hence, in the United States, employers sponsored—either partially or entirely—two-thirds of all courses taken by the population of adult education participants. The range was from one out of three courses in Italy to two and half courses out of three in Norway. These findings suggest that the high participation rates observed in some countries were at least in part due to the active role of employers in providing, encouraging and funding adult education and training activities. But at the same time, the courses that were subsidized or otherwise sponsored by employers tended to be of a briefer duration than courses supported by the participants themselves, their family or the community (Kapsalis, 1997).

Figure 8B presents the percentage of adult education participants who said the course they took had been financially supported by government agencies or by themselves and their family. There were clear differences between countries in the percentage of participants who said their course was supported by government. Public agencies in the United States ranked significantly below average on this indicator, and similar to Australia, the Czech Republic, the Netherlands, Poland and the United Kingdom. Compared with the United States, a significantly higher percentage of adult education participants in the majority of the countries surveyed said the course they had taken had been financially supported from government sources. The proportions of government support ranged from 5.6 percent in Poland to 28 percent in Italy. Canada scored above average with 17 percent of all its participants mentioning the government as a source of funding.

Also shown in Figure 8B are the percentages of participants who said they themselves or their families had paid for most of the courses. Switzerland had the highest rate of self or family support, with more than half of participants themselves meeting the costs. Proportions were much lower, under 20 percent, in Norway and the United Kingdom – two of the countries with the highest levels of employer support.

The distributions of stakeholder support for education and training showed somewhat different patterns when looked at from a gender perspective.[21] Employers were found to be the leading sources of financial support for education and training for men, whereas self and family were the most common sources of funding reported by women (OECD and HRDC, 1997, pp. 187-188). U.S. men and women mentioned employer support for education about seven times more frequently than support by government. But compared with men, a higher percentage of U.S. women supported their education themselves or thought it was subsidized from government sources. But even in this case the government was believed to play only a modest role in the U.S. adult education market. In contrast, in Canada, employer support for training was significantly more common for men than for women. For self-financing and government sponsorship the situation was reversed, with significantly more women than men paying themselves or obtaining support from government. Compared with North America, however, the gender differences with respect to employer support for training were larger in several European countries, notably Belgium (Flanders), the Netherlands and Switzerland.

On the whole, the findings suggest that the above-average participation rate observed for the United States in Figure 1 was not due to exceptional government effort but could rather be attributed to frequent support by employers. By analogy, the average participation rate observed for Canada, which was significantly below that of the U.S., corresponded

21. Analyses of the patterns of adult education participation by gender using the IALS data set are reported in OECD and HRDC (1997) and OECD and Statistics Canada (2000). See also E. Leuven (1997), "Gender differences in work-related adult education and training", in P. Bélanger and A.C. Tuijnman, *op. cit.*, pp. 189-207; and S. Valdivielso (1997), "Beyond the walls of the household: Gender and adult education participation", in P. Bélanger and A.C. Tuijnman, *op cit.*, pp. 209-227.

with significantly less frequent support from Canadian employers. But because employers' willingness to invest in education and skills is related to labor market variables, this does not necessarily mean that Canadian employers were less generous or had less rational interest in training issues. The observed difference in the U.S. and Canadian training rate was more likely due to differences in the occupational and industrial structures of the two countries. These issues are explored further below.

9. Training, Literacy Skills and Engagement at Work

Figure 9A-B presents the likelihood (odds) of receiving employer support for training for two groups: the population with a high level of literacy proficiency versus the population with a low level of literacy, and workers often engaged in literacy practices at work versus workers who were little engaged in such practices. For both comparisons, the likelihood of receiving support for those with low literacy and little engagement was set at 1; the probabilities for the other groups were expressed as multiples relative to these baselines (see Box 1). The results show that working in an environment that demanded the frequent use of literacy skills helped to maintain and reinforce these skills.

Box 1. Using Odds Ratios

Differences between population groups are expressed in terms of the likelihood of these groups receiving financial support for education and training from employers. An odds ratio of 1 represents equal odds for the comparison groups of receiving and not receiving financial support for training from employers. Coefficients with values below 1 indicate less chance of receiving such support, and coefficients larger than 1 represent an increased chance.

Figure 9A presents the odds of receiving financial support for adult education and training from an employer for those who had high literacy skills (IALS Levels 4/5) and those who had poor skills (IALS Level 1). It will be seen that in every country the likelihood of receiving such support increased consistently with increasing levels of literacy. Whereas in the Czech Republic and Sweden there were quite minor differences in employers' willingness to pay according to literacy level (odds ratios below 3), this difference was very large in Canada and Chile (odds ratios exceeding 10). Confirming the trend established in indicators 7 and 8, U.S. employers were less likely than Canadian employers to make training decisions in relation to levels of literacy. Of course this finding could mean that Canadian employers had a keener awareness than U.S. employers of the value of high literacy skills. With an odds ratio below 5, U.S. employers ranked significantly below the weighted country average. The odds ratios for U.S. employers were not significantly different from ratios in Finland, the Netherlands, New Zealand and Switzerland, but they were statistically higher than those of employers in the Czech Republic, Ireland, Poland, Slovenia, Sweden and the United Kingdom.

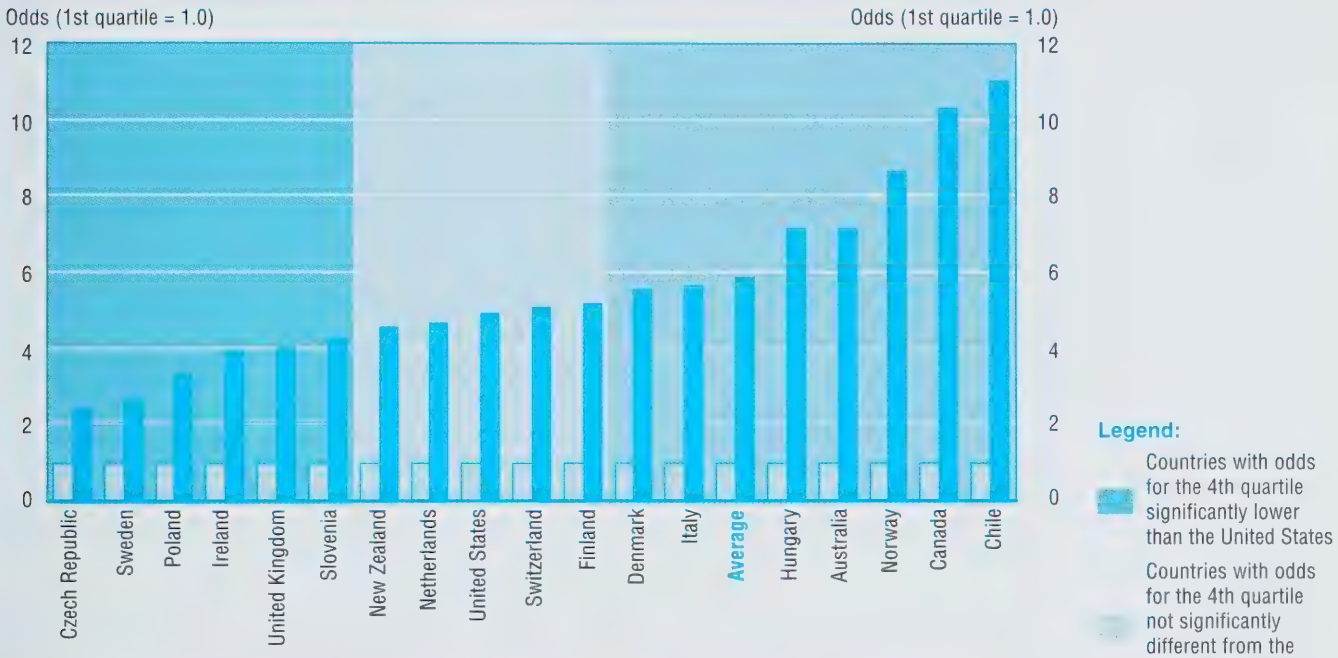
Figure 9B presents the likelihood of receiving some financial support from employers for education or training for those often engaged and little engaged in various literacy practices at work (see Box 2). The odds of receiving employer support for training clearly increased sharply for workers where job tasks included a lot of reading, writing or calculation compared with workers whose jobs had little use for such skills. The ratios indicate that there were much wider differences between countries with respect to literacy uses (Figure 9B) compared with literacy scores (Figure 9A). U.S. personnel most engaged in workplace literacy practices had an 11 times higher probability of receiving financial support from an employer for education or training than those who used workplace literacy practices the least. This ratio, while high, did not differ significantly from the weighted average. The odds ratio was significantly lower in Canada. The wide range in probabilities (5.5 to 16.6 odds) reflected important cross-national differences.

FIGURE 9

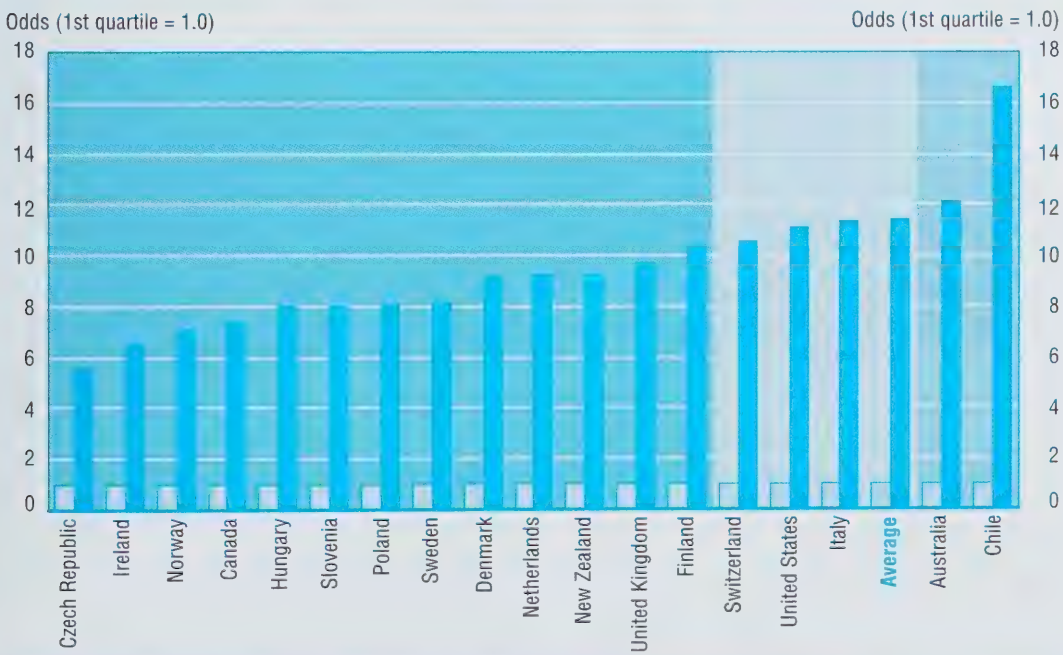
LIKELIHOOD OF RECEIVING EMPLOYER SUPPORT FOR TRAINING

Odds of participating in employer-sponsored adult education and training, by document literacy levels and by extent of literacy engagement at work, population aged 25-65, 1994-1998

A. Odds of receiving employer support for training by document literacy levels



B. Odds of receiving employer support for training by literacy engagement at work



COUNTRIES ARE RANKED BY THE ODDS OF THE 4TH QUARTILE. THE STATISTICAL DIFFERENCE TO THE UNITED STATES IS COMPUTED FOR THE 4TH QUARTILE.

Note: Statistical difference is significant at $p < .05$.

Source: International Adult Literacy Survey, 1994-1998.

Box 2. Literacy Engagement at Work

The index "literacy engagement at work" is a four-category variable created on the basis of responses to 11 questions asking individuals how frequently at work they engaged in reading, writing and arithmetic activities using various kinds of texts such as reports, memos, letters, schemas, manuals, financial documents, invoices, instructions, and specifications. Someone with a higher score on this index does not necessarily read more frequently but has a greater variety of literacy experiences more often.

10. Training Hours and Firm Size

The willingness to invest in human resources and the size of organisations are usually related, with larger organisations tending to spend more on training per worker than smaller organisations. Indicator 10 shows the strength of this association across countries in the mid to late 1990s—a generally prosperous time for many firms and public sector organisations in the countries considered.

The IALS data generally confirmed the hypothesized relationship. Organization or firm size did indeed play a major role in training decisions, with smaller firms (less than 100 workers) having a significantly lower training effort measured in hours per worker employed than larger firms (500 workers and more). The tendency for larger firms to train more held true in most countries. In the United States, those employed by large firms with 500 workers or more were almost four times more likely[22] to receive employer-support for adult education or training than those employed by small firms with 20 or fewer workers (OECD and HRDC, 1997, Table 4.9, p. 189). Accordingly, bringing incentives to bear on small organisations and firms in the United States to train their workers could be an important consideration.

Figure 10A-B presents an indicator of total training effort per employee in medium to large firms (20-99 and 100-499 workers).[23] Table 10 in Annex A presents the input data used for the calculation of this indicator. For medium-sized establishments, total training effort per worker ranged from 14 hours in Belgium (Flanders) and Italy to 91 hours in Finland. The training effort of medium-sized U.S. firms (31 hours) was close to the country average (34 hours) but that of medium-sized Canadian firms (57 hours) was significantly above this average.

For large establishments, total training effort per worker ranged from a low of 12 hours in Canada to a high of 115 hours in New Zealand. Again, large U.S. firms were close to the average. Canada's position among the countries studied resulted from both a low participation rate and a low number of average training hours per worker. A comparison between the two graphs shows that the practice of job-related education and training is higher in medium-sized Canadian firms with less than 100 workers, where the country ranked among the top five. The training disadvantage of firms with less than 20 workers (first column in Table 10c) was somewhat offset by the fact that in most countries smaller firms sponsor courses of a longer duration than large firms. The United States was no exception to this.

22. Odds ratios adjusted for occupational status, industry classification, literacy engagement at work, and full- or part-time work. See box in text.

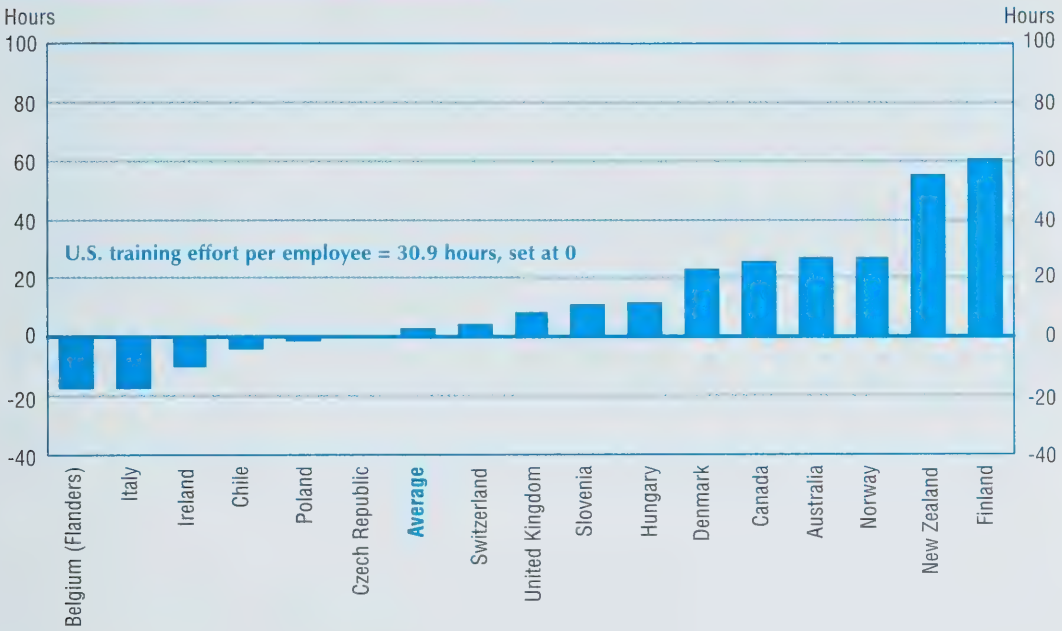
23. Mean number of hours per employee = Mean number of hours per participant x Participation rate /100.

FIGURE 10

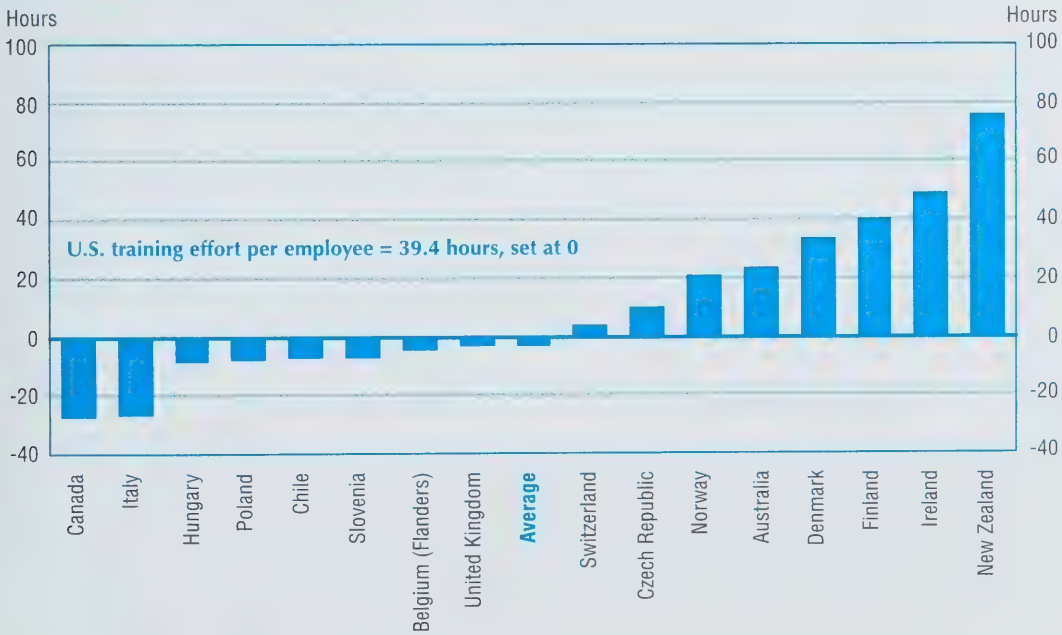
TRAINING HOURS PER EMPLOYEE IN MEDIUM TO LARGE FIRMS

Training effort per employee in medium-sized firms (20-99) and large firms (100-499), employed population aged 25-65, 1994-1998

A. Medium-sized firms (20-99 employees)



B. Large firms (100-499 employees)



COUNTRIES ARE RANKED BY THE DIFFERENCE TO THE UNITED STATES. NO STANDARD ERRORS ARE REPORTED.

Source: International Adult Literacy Survey, 1994-1998.

It can be concluded from the indicators so far presented that adult education and training were not 'for all' but mainly for the already well educated and skilled. Another conclusion drawn is that employers tended to play a more important role in the supply of training and its financing than many governments. Accordingly, and in spite of the fact that in many countries there was a commitment to pursuing active labor market policies, those who were employed received more education and training than those who were unemployed, and those who worked in larger establishments received more than those in smaller establishments.

The next indicators will shed more light on personal and social factors in training decisions by investigating five additional factors: personal motivation; structural and financial barriers; literacy practices; the financial wealth of wage earners; and aspects of nations' social capital stock.

11. Unfulfilled Educational Aspirations

Figure 11 presents comparable evidence on two ways of looking at non-participation. The first considers the proportion of the employed population who did not participate in job-related education or training, the second the proportion who wanted to participate but did not. Finland, which had the highest percentage of people who were motivated to take adult education but for one reason or another did not, was used as the reference country for the calculation.[24] With the exception of Denmark, the non-participants outnumbered the participants in all countries (see Table 11 in Annex A).

About 58 percent of the U.S. employed population and 64 percent of the Canadian employed population did not receive any job-related training during the 12 months preceding the interview. Of these proportions, about 20 percent of Americans and 28 percent of Canadians said they wanted to take training but did not. Thus it can be inferred that 46 percent of North American adults with jobs were unlikely to participate in adult education, a high number considering the skill requirements of the knowledge economy, but a fairly average number compared to the other countries. Only the Czech Republic, Hungary and Poland had a significantly larger proportion of disinterested people than Canada and the United States. See Chapter 3 for further data on participation motivation.

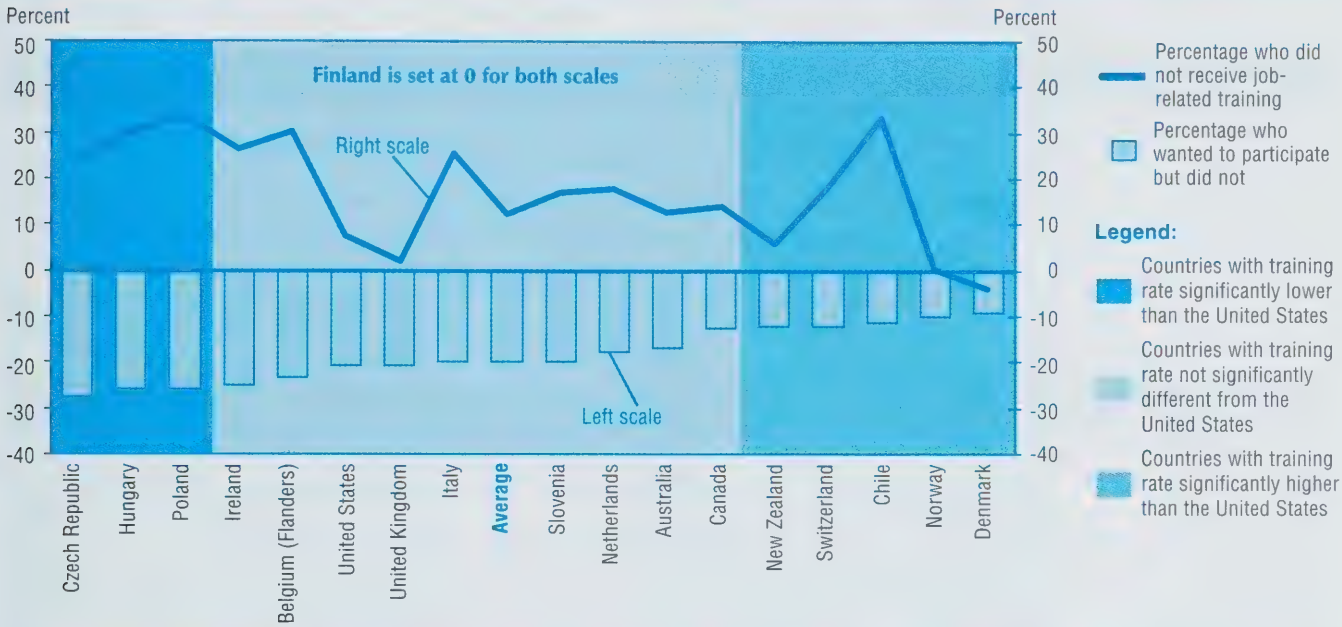
But disinterest or lack of personal motivation were not the only explanations for not taking adult education and training, because there was a fair proportion of people in each country who wanted to participate but did not.

24. About 40 percent of the Finnish employed population aged 25-65 wanted to take training but did not. This was the highest percentage among the countries studied. The "hanging bars" in Figure 11 (left scale) are the country differences to this Finnish reference point.

FIGURE 11

TRAINING DESIRES UNFULFILLED

Percentage of the employed population aged 25-65 who did not receive job-related training, and percentage who wanted to participate but did not, 1994-1998



COUNTRIES ARE RANKED BY THE PERCENTAGE WHO WANTED TO PARTICIPATE BUT DID NOT. THE STATISTICAL DIFFERENCE TO THE UNITED STATES IS COMPUTED FOR THE PERCENTAGE WHO WANTED TO PARTICIPATE BUT DID NOT.

Note: Statistical difference is significant at $p < .05$.

Source: International Adult Literacy Survey, 1994-1998.

12. Barriers to Participation

Based on work by Cross (1981), Rubenson and Xu (1997, p. 84) analyzed the IALS data on the reasons why people had not received adult education and grouped them under three main "barriers":

- Situational barriers – those arising from one's situation in life, e.g. lack of time, because of work, family responsibilities, etc.;
- Institutional barriers – practices and procedures hindering participation, e.g. fees, lack of money, absence of evening courses, entrance requirements, limited courses offerings, etc.;
- Dispositional barriers – motivation, attitudes and dispositions towards adult education and learning.

Evidence from previous research studies (Quigley and Arrowsmith, 1997) indicates that such barriers tended to operate systematically to the advantage of certain social groups and the detriment of others. Table 12 in Annex A shows different reasons for not taking the adult education or training the respondent either needed or wanted, classified for each country according to the three barriers above. In Figure 12 only the three most frequently mentioned reasons are shown for the countries.[25]

25. The graphical presentation is limited to these three response categories because the other reasons were mentioned less often and are therefore measured on the basis of only limited numbers of cases.

On the whole, the pattern that emerged was quite stable across countries in that situational barriers, especially "lack of time" and "too busy at work" were mentioned most often. But there were meaningful differences between the countries too. For example, close to 100 percent of non-participants in New Zealand said they did not take training because they were too busy at work and lacked time. These barriers were mentioned by only half of the respondents in Hungary, Norway and the United Kingdom. Non-participants mentioned these situational barriers similarly often in Canada (63 percent) and the United States (71 percent).

FIGURE 12

REASONS FOR NOT TAKING ADULT EDUCATION AND TRAINING

Three major reasons for not taking the adult education and training the respondent either needed or wanted, 1994-1998

COUNTRIES ARE RANKED BY THE PERCENTAGE WHO SAID THEY LACKED TIME OR WERE TOO BUSY AT WORK. THE STATISTICAL DIFFERENCE TO THE UNITED STATES IS COMPUTED FOR THE CATEGORY LACK OF TIME.

Note: Statistical difference is significant at $p < .05$.
Respondents could indicate more than one reason so totals may exceed 100 percent for a country.
Source: International Adult Literacy Survey, 1994-1998.

However, institutional barriers, especially "lack of money" were additional factors hindering participation. This was the case particularly in Canada and the United States—two of the countries that were earlier shown to have a relatively smaller role for government in adult education than some of the European countries (see Indicator 8). Lack of money was quite often mentioned by non-participants in Canada (24 percent) and the United States (34 percent). That the courses people wanted were not offered was mentioned surprisingly

often in some countries, including the Czech Republic and Finland, but appeared not to be a major factor in North America. In both Canada and the United States the more important barrier was that the course was offered but at an inconvenient time. This reason was given by 11 percent of the non-participants in Canada. Differential attitudes and motivation, in contrast, appeared to play a more modest role in adults' decision to train.[26]

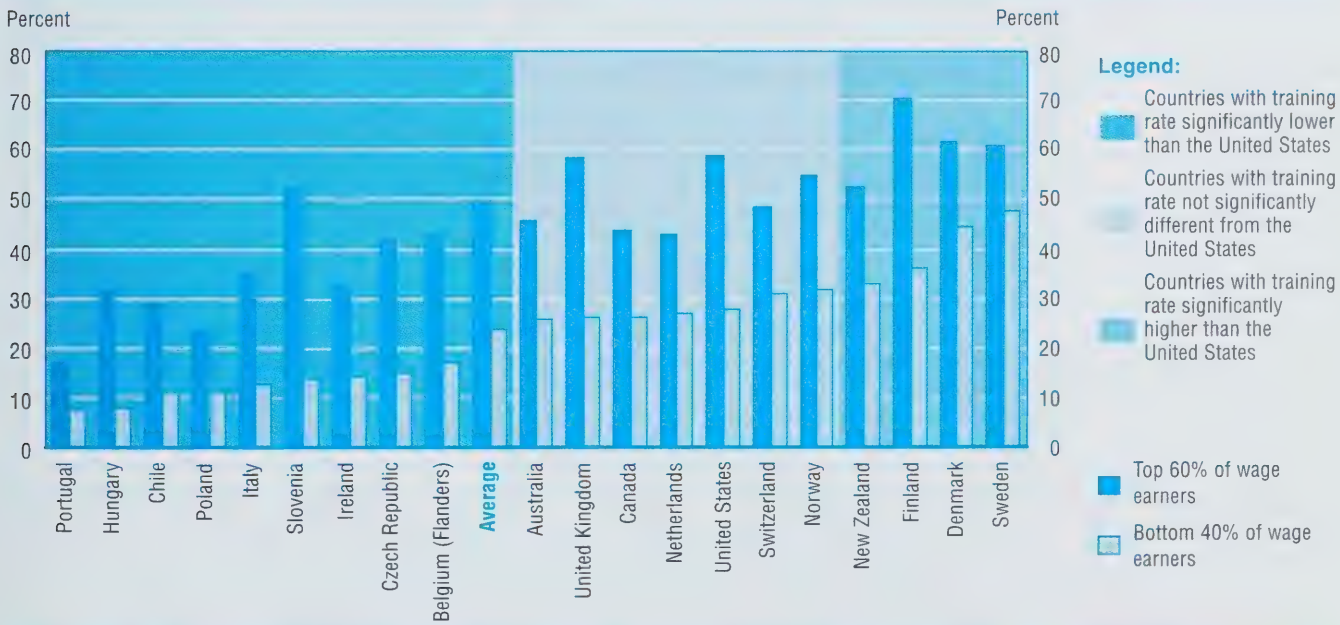
13. Wage Earners and Adult Education

In all the IALS countries there was a significant and positive relationship between adult education participation and average wages. On average in all countries, low-wage workers had a low incidence of participation while high-wage workers had a high incidence. One reason might be the positive association between job level and adult education participation, on the one hand, and job level and earnings on the other (Tuijnman, 1989). A further reason could be that more wealthy persons can more easily afford to buy educational services. For example, older workers with high earnings participated more frequently and with more intensity compared with low incomes workers.

FIGURE 13

TRAINING RATE AND EARNINGS

Rate of participation in adult education and training, bottom 40 percent of wage earners versus the top 60 percent of wage earners, population aged 25-65, 1994-1998



COUNTRIES ARE RANKED BY THE PARTICIPATION RATE OF THOSE WITH AN INCOME FROM WORK IN THE BOTTOM TWO QUINTILES. THE STATISTICAL DIFFERENCE TO THE UNITED STATES IS COMPUTED FOR THIS CATEGORY.

Note: Statistical difference is significant at $p < .05$.

Source: International Adult Literacy Survey, 1994-1998.

26. It is acknowledged that we ought to know much less about psychological factors and their impact on the decision to enroll in adult education or training than we ought to know (Cross, 1981; Tuijnman, 1996; Rubenson and Xu, 1997; OECD and U.S. Department of Education, 1999), and that further research, especially longitudinal research, would be warranted.

Figure 13 presents, for each country, the rates of participation for the bottom 40 percent of wage earners and the top 60 percent of wage earners. As in the other countries, low-wage workers had a lower incidence of employer supported training in Canada and the United States. Both countries were average in this respect. Training rates were average also for the top 60 percent of wage earners in Canada, but above average for high-income workers in the United States.

So far, the determinants of adult education have been considered separately. Although both the IALS findings considered and results of previous—mainly national – studies using similar measures hinted at the presence of meaningful associations between variables, the evidence has not provided much information about the relative importance of each factor in predicting who received adult education, or how much. To balance this, the next indicator presents the results of a multivariate analysis of data used to determine the relative contribution of 10 different factors in explaining the observed variance in adult education participation within countries.

14. Determinants of Adult Education

The purpose of the analyses was twofold. First, it was to establish how much of the variance in the outcome could be explained by the predictor variables in each country. The second aim was to see how much of this explained variance could be attributed to each of the predictors while holding the other factors constant (see Box 3).

Box 3. How the LISREL Parameters Were Obtained

The results in Figure 14 are obtained in linear structural relations (LISREL) path models. See Jöreskog and Sörbom (1999a-b) and Tuijnman and Keeves (1996) for an explanation of the method. The outcome variable, participation in adult education and training, is a latent construct measured by two items: number of courses taken, and total training hours for up to three courses. The specified model included 10 predictor variables: gender, age, parents' education, native versus foreign language, respondents' education, occupational status, labor force participation, literacy practices, literacy proficiency, and earnings. See Boudard (2000) for the measurement properties of these variables.[27]

Figure 14 presents the three most important determinants of adult education participation, estimated in models that held constant variation attributed to literacy proficiency and earnings. Between one-quarter (23 percent) and one-third (34 percent) of the variance in participation was explained, depending on the country (see Table 14 in Annex A). Across countries the most important predictor was literacy practices – a latent construct measuring how often respondents were confronted with situations in which they where were required to call upon their knowledge and skills. Among those studied, the models estimated for Canada, Denmark, the Netherlands and the United States significantly identified literacy practices – a construct that measured both the demand for literacy skills and the actual use made of them – as the single most important factor.

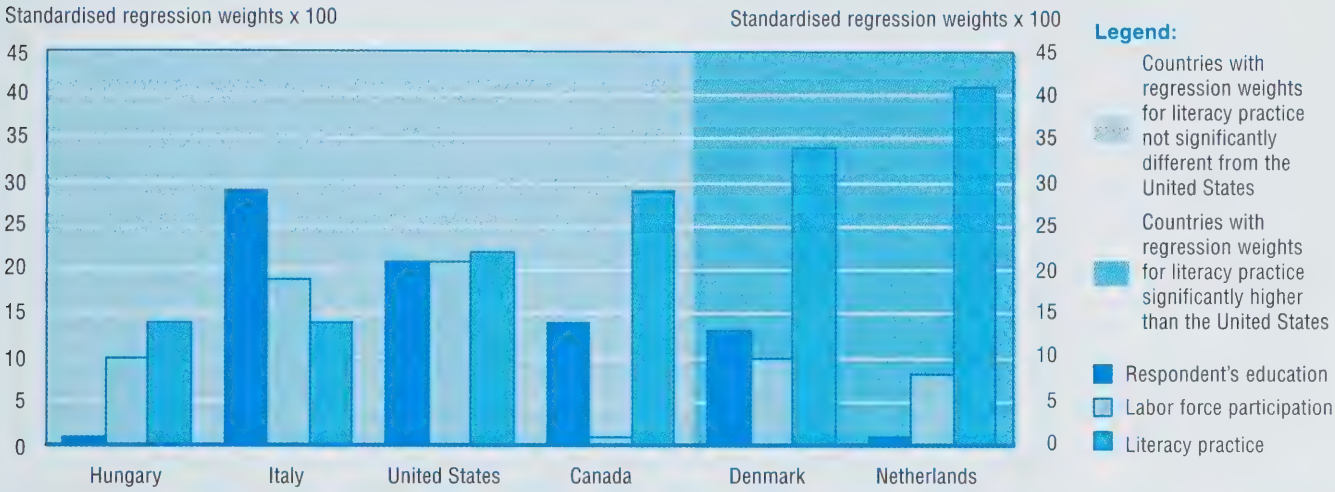
Additionally, respondent's education and labor force participation were two significant factors in most models. As indicated in Figure 14, while respondent' education was important in the models estimated for Canada, Denmark, Italy and the United States, the construct had no significant effect in the Dutch and Hungarian models. Labor force participation had a low but statistically significant effect on adult education participation in all countries studied but Canada. Remarkably, the three factors had an equal weight (20 points) in the equations estimated for the United States. Occupational status showed puzzling results, with positive effects on participation in all country models but the Netherlands. The explanation might be that those who participated in adult education in the Netherlands most frequently were workers with relatively low status occupations.

27. The estimates shown in the graph are standardized regression weights obtained under the maximum likelihood fit function. Presented in Table 14 in the statistical annex are the standard errors of the estimates and the R2 values indicating the total amount of variance explained in the outcome variable. All models controlled for the variance associated with gender, age, parents' education and native versus foreign language. All specified variables had identical properties of measurement across the models.

FIGURE 14

DETERMINANTS OF ADULT EDUCATION

The three most important determinants of adult education participation, controlling for literacy proficiency, occupational status and earnings, population aged 25-55, 1994-1998



COUNTRIES ARE RANKED BY THE REGRESSION WEIGHT OF LITERACY PRACTICE. THE STATISTICAL DIFFERENCE TO THE UNITED STATES IS COMPUTED FOR LITERACY PRACTICE.

Note: Statistical difference is significant at $p < .05$.

Source: Boudard (2000).

Of the two main control variables, earnings had a strong effect in the Hungarian model. This effect was low but significant in the Netherlands (see Table 14 in Annex A). Literacy proficiency was significant in only four countries: Canada, Hungary, the Netherlands and the United States. Among the other variables specified in the equation, gender and native versus foreign language exerted negative effects in the models estimated for Denmark and the Netherlands. Age had a negative effect in all countries but Denmark, a country for which this measure had little variance. Parent's education had a slight but positive effect in the model estimated for Canada and the Netherlands. Collectively, these results question the common understanding that educational attainment is the single, most important variable in explaining participation in adult education, because the models indicate that the determinants that were significant in the Italian model and—albeit to a lesser extent—the United States model were significantly different from those estimated for Canada, Denmark, Hungary and the Netherlands.

15. Adult Education and Nations' Social Capital

The final indicator considered in this monograph is concerned with the relationship between adult education participation and the "social capital" of nations. Two dimensions of social capital are explored. The first concerns participation in community activities and the voluntary sector while the second concerns the notion of "trust in others".

Sociologists have suggested that participation in the voluntary sector and other non-work contexts is an important determining factor of the quality of democratic life and civic society (Coleman, 1988; Verba *et al.,* 1995). In his seminal work, *Foundations of Social Theory,* Chicago sociologist James Coleman (1990, p. 653) differentiated between physical capital, human capital and social capital, and suggested that because the first two have never been as equally distributed as social capital, neither can be a full substitute for it.

Putnam (1993) sees social capital reflected in participation in voluntary associations, norms of reciprocity and trust, and networks of civic engagement.

According to its proponents, social capital enables people to achieve goals that would not have been possible in its absence. Verba *et al.* (1995) suggest that certain resources including civic skills are necessary for political participation. They also point to the acquisition of civic skills that takes place in voluntary associations. Just as literacy skills are a prerequisite to learn efficiently on the job, participation in civic society is necessary for developing civic skills. Voluntary associations and community activities are therefore important arenas for informal learning that can stimulate the development of new skills as well as preventing others from being lost due to lack of use.

The IALS touches upon the issue of civic skills and social capital in a question about the extent to which the respondents participated in voluntary community activities. The evidence, shown in Figure 15A, suggests that there is a positive relationship – albeit not very strong—across countries between participation in community-based voluntary associations at least once a month, on the one hand, and participation in adult education during the 12 months preceding the interview, on the other. Not considering outliers like Finland and Ireland, on balance, nations with higher rates of community participation tended to have higher rates of adult education participation as well. The Scandinavian countries and New Zealand scored significantly higher on this indicator than the other countries. Switzerland, the United Kingdom and the United States had rates significantly above the country average, while the rates for Australia and Canada were not significantly different from this average.

Figure 15B explores a second aspect of the relationship between the adult education participation rates of the IALS countries and these nations' stock of social capital as measured by the amount of "trust in others" that is present in society.[28] The graph suggests that there might be a relationship between the two, although the direction of this relationship was unclear. But based on these measures a quite interesting pattern was found. The Nordic countries were in one cluster. A second group included several English-speaking countries plus Switzerland and the Netherlands. The third cluster—characterized by comparatively low participation rates and low levels of trust in others – was formed of Belgium (Flanders), Chile, France, Italy and Portugal, whereas Iceland and Ireland were outliers.

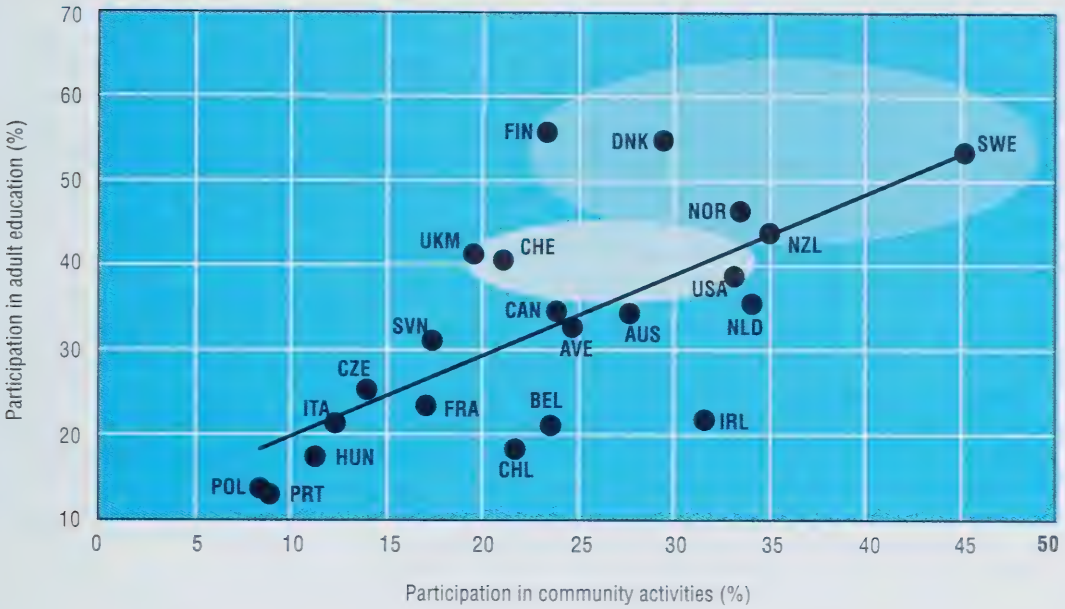
28. The data source for the measure of 'trust in others' was the 1990-1991 World Values Surveys, which collected data on thousands of respondents from 29 market economies. A weighted variable constructed to correct the country mean scores for the effects of oversampling was used for this particular analysis (for details, see Knack and Keefer, 1997).

FIGURE 15

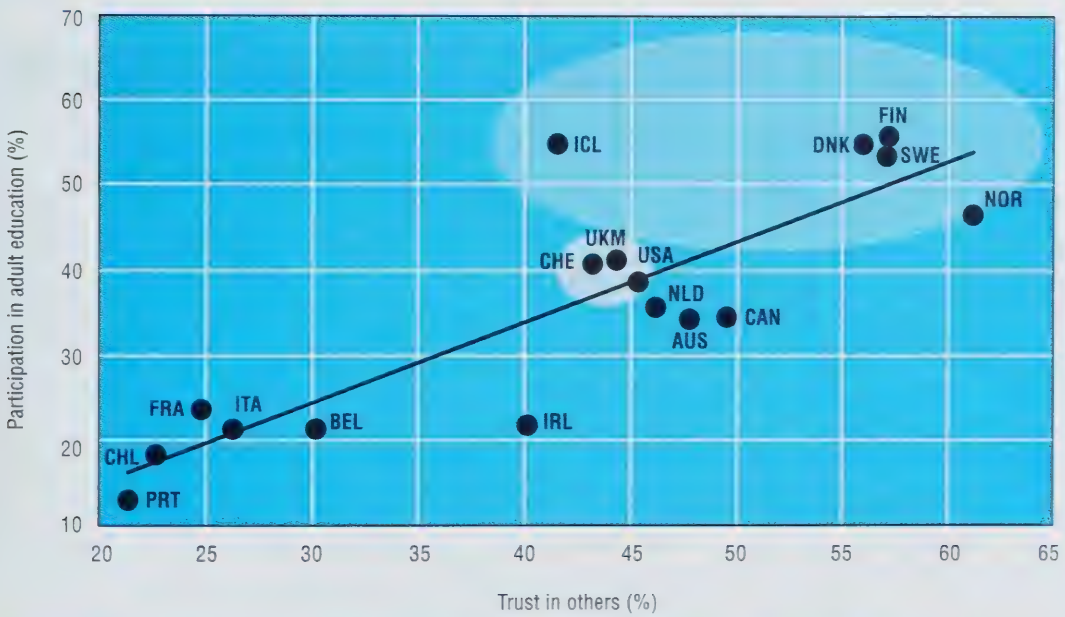
ADULT EDUCATION AND SOCIAL CAPITAL

Relationship between "trust in others" and "participation in community activities", and the rate of participation in adult education and training, population aged 25-65, 1994-1998

A. Participation in community activities and participation rate



B. Trust in others and participation rate



Legend:

- Countries with participation rate significantly lower than the United States
- Countries with participation rate not significantly different from the United States
- Countries with participation rate significantly higher than the United States

Note: Statistical difference is significant at $p < .05$.

Source: International Adult Literacy Survey, 1994-1998.

Conclusions

On the whole, in terms of their training volume per capita, the U.S. work force ranked average and the Canadian work force above-average among the countries studied. But these results do not call sufficient attention to the diversity of the adult education markets of North America. On some of the international indicators reviewed, Canada and the United States ranked similarly, but on other measures their relative positions were quite different. Both countries were alternatively found in below-average, average and comparatively strong positions across the range of indicators reviewed.

Among strong U.S. positions were the overall rate of participation, the participation rate for the well educated, financial support from the employer (especially for men), and the likelihood of receiving employer support for those highly engaged in literacy activities at work. The United States had an average position in terms of the rate of participation of women, the rate of participation for older employees, the likelihood of receiving employer support by literacy proficiency, and the training volume per worker in mid-sized firms. Among the weaker U.S. positions were training duration, the participation rate for those with lower educational attainment, the participation rate for blue-collar low-skill workers, and financial support for adult education from government sources.

For Canada, particularly strong positions were the training effort per capita due to high study intensity not only among young adults but also among the older population, the job-related orientation of courses supplied and the proportion of courses that were financially supported from government sources. Canada held the middle ground with respect to the participation rates of the general and the employed population, and the training rate for the low educated. The data shows that the country was in a relatively weaker position in terms of the training rate for the unemployed, especially for older unemployed persons, disparities between younger and older populations and between occupational groups, and the proportion of courses that were financially supported by employers.

CHAPTER 3

Conclusions and Discussion

3.1 Principal Findings

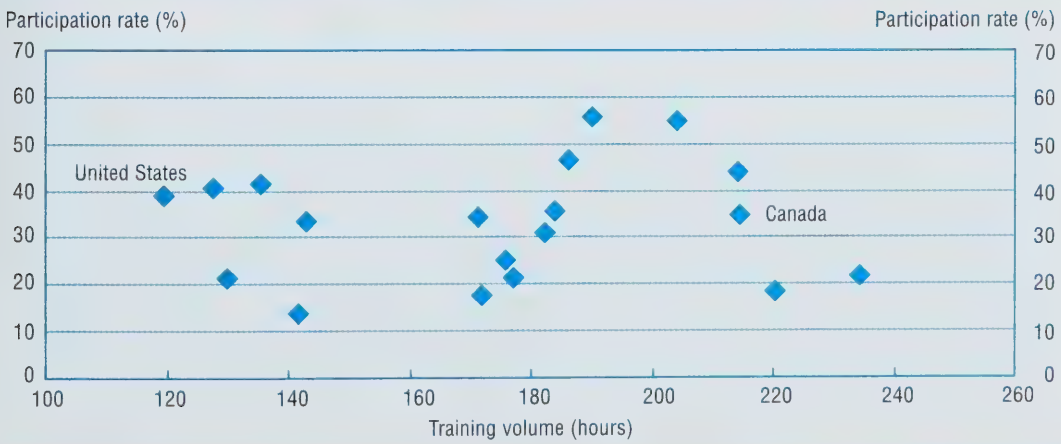
Based on the evidence provided in this monograph, it can be safely concluded that participation in formal adult education and training had become a common experience for many Americans and Canadians by the mid-1990s. Simplifying, the main pattern is summarized in Figure 16.

- The U.S. participation rate was somewhat higher than that of Canada; the difference is statistically significant.
- Training volume in hours per participant was apparently much higher in Canada compared with the United States, but in this case the difference is not statistically significant.
- No clear relationship was established across countries between the participation rate and training volume. The countries varied in an apparently random way on these two measures, with some scoring higher or lower than either Canada or the United States on one or on both measures.

FIGURE 16

Rate of participation and training volume in North America

Rate of participation in percent and training volume in mean number of hours of adult education and training, population aged 25-65, 1994-1998



Source: International Adult Literacy Survey, 1994-1998, Annex A.

Participation in adult education was not only a common activity for many North Americans, but they also devoted a lot of time to it. Overall training effort[29] was 74.3 hours in Canada and 46.4 hours in the United States. This can be compared with the training effort of the other English-speaking countries in the sample: Australia (58.7), Ireland (51.4), New Zealand (94.1), and the United Kingdom (56.0). This comparison was favorable for Canada but less so for the United States. Due to its high population weight, however, the United States nevertheless came in an average position.

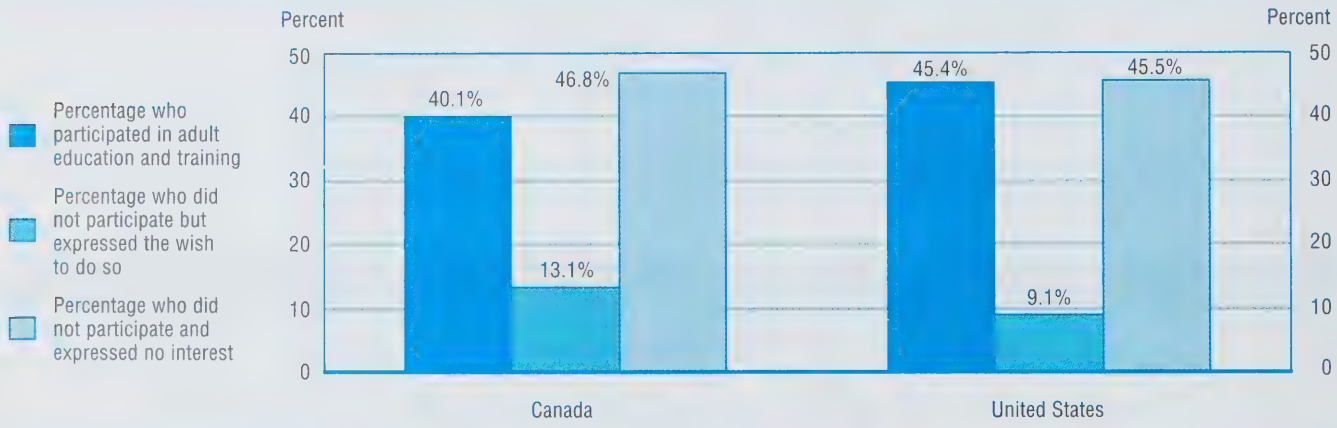
These generally encouraging findings notwithstanding, there existed also another reality in North America at the time the data were collected. In this other reality lived the many Americans and Canadians who did not participate in any organized education or training during the year. Figure 17 indicates that the patterns were markedly similar for the two countries.

- Non-participants significantly outnumbered participants.
- A significant percentage of non-participants in fact wanted to take part but did not.
- The largest group comprised those who did not take part and who also expressed no desire or intention of doing so.

FIGURE 17

Participants and non-participants in North America

Percentage of the adult population who participated, did not participate but expressed the wish to do so, and did not participate and expressed no interest in adult education and training, employed population aged 25-65, 1994-1998



Source: International Adult Literacy Survey, 1994-1998, Annex A.

Thus the results suggest that countries are faced with a paradox. On the one hand, adult education is a factor in social inclusion; it represents a means of acquiring the knowledge, skills and experiences that help people adjust and cope with change, including finding a new balance, whether in work, culture or family life. But at the same time adult education is also a factor in exclusion. With the transition towards learning societies and knowledge economies, the cumulative costs of persistent non-participation to individuals, firms and whole communities might increase (Bélanger and Tuijnman, 1997). The challenge thus posed is to find ways of reducing the exclusive tendencies in adult education, and to make it a more common experience over the life span.

29. Mean number of hours of adult education or training per capita.

Two caveats to the above analysis should be kept in mind. First, because the IALS data set was collected in the mid to late 1990s, the picture it provides may or may not reflect accurately on the situation prevailing today. It cannot, therefore, be concluded that North Americans do not at present engage in formal adult education as much as do people in other advanced countries, or that employers under-invest in the training of their human resources. Second, it should be kept in mind that the assessment is necessarily incomplete and that there are a number of other issues that ought to be considered as well. These include the patterns and distributions of informal learning and the economic and wider social effects of both formal adult education and informal learning at work and in daily life.

For the period investigated, however, the evidence indicates that those with low skills and little initial education had a much lower probability of receiving adult education than those with high skills and a long initial education. Adult education therefore tended to favor the already educated. This unequal distribution of opportunity to learn can be interpreted in several ways. One viewpoint is that it reflected more fundamental differences in the population profiles of talent and ability. According to another interpretation it was, on balance, a consequence of the many factors that determined the social and economic demand for skills in North America. A third way of looking at this inequality is that it indicated under-investment in education, particularly for low-skill adults, because the private and social benefits of additional education would have outweighed the costs to individuals, firms and countries.

3.2 Some Implications

It is clear that the findings presented in this report hold important conclusions for public policy. For example, the analyses raise questions about the adequacy of current levels of investment in adult education and training in North America and, hence, about the need for public investment to increase participation rates. Further, data presented in this report identify levels of inequity in the social distribution of participation rates, a fact that might be used to justify public intervention to correct market failure.

On the face of it, judging the adequacy of current levels of investment in North America should be a simple matter. In theory, optimal training rates should be set to redress imbalances between the supply of skill available to the labor market and the near-term demand for skill implied in rates of technological change and structural adjustment observed in the economy.

In practice, however, the calculus to address adequacy is complex. As expected, the supply of skill available at any given point in time is determined, in large part, by the quality and quantity of skill flowing out of the formal education system. Other factors, however, also play a role in defining the available stock of skills. Obviously, participation in formal adult education generates learning outcomes that add to the stock of skills. Additions can also be attributed to processes of informal and non-formal learning occurring in multiple social domains, including the workplace. Somewhat unexpectedly, evidence is mounting that processes of skill loss and depreciation play an important role in reducing the supply of skills available to society (OECD and HRDC, 1997). This may suggest that one might need higher rates of participation in adult education and training than would otherwise be required to compensate for these losses.

Judging short-term demand for skill is perhaps even more difficult. As noted above, change in skill demand in the labor market will be driven, in large part, by changes in the technology of production. Although these changes are generally believed to be biased in favor of increased skill, in many cases they also imply processes of deskilling wherein the introduction of technology reduces the skill demand in particular jobs. Change in skill demand will also be driven by changes in the social organization of production, changes that are thought to imply a much higher demand for generic skills, such as reading literacy and general problem solving ability, needed to cope with information intense jobs being created in most OECD economies. Finally, in many countries, social demand for skill actually outstrips the economic demand for skill, a fact that reflects the importance of skill for societies beyond the economic sphere.

Finally one must acknowledge that inefficiencies in markets for skill serve to reduce the available pool of skill. Inefficiencies in markets for skill can be attributed to factors that range from inadequacies in the skill signaling and selection system that matches employees with jobs, to problems of social rationing that reduce labor market participation rates and limit opportunities for otherwise skilled groups of workers.

Thus the findings that North American adults do not participate in formal education and training at the rate of equivalent populations in other advanced economies, notably in the Nordic region, can be interpreted in different ways in the absence of a full understanding of how supply and demand for skill interact in markets for skill.

One interpretation is that Americans and Canadians do not "underinvest" in adult education and training because their initial education equipped them with the skills to meet the demands imposed by the labor market. Alternately, current rates of investment in adult education in North America might reflect lower levels of skill demand implied in current industrial structures. A third, less plausible, explanation might lie in the fact that North American adults are much likely to learn on their own, informally without recourse to formal education systems. A fourth possibility is that the extraordinary participation rates observed in Nordic countries are, in fact, not economically rational. Rather, these rates may be seen as the product of societies that have long valued adult education as an ingredient and expression of civil society and democratic participation, a fact that explains the presence of a rich web of supportive public policies for adult learning. Thus it cannot be concluded, on mere economic grounds, that North America participation rates are inadequate.

Whatever the final judgment concerning the adequacy of rates of adult education participation at the aggregate level, the analysis of the social distribution of participation reveals wide variation in the odds of participation for different groups in North American societies. Adult education and training rates for persons with low levels of educational attainment and for older adults, for example, were significantly lower in North America compared with a number of other countries. Enlarging the participation rates of these groups may, therefore, be both economically and socially desirable.

Achieving such enhancements through public policy may be rendered more difficult in some countries, specifically those countries where access to training is mostly determined privately. This will be particularly problematic in North America where much of the adult education and training is funded by employers. Employers tend to provide more training to those employees who are most likely to repay the investment through productivity gains. Such behavior will tend to increase the range of skill and the dispersion of wages within firms. Faced with this situation public policy would have to create targeted incentives for firms to train more of their least able employees, and for these workers to actively seek training.

It is important to note that public policy intervention need not be restricted to offering financial incentives. For example, governments could attempt to improve the efficiency of individual and firm decisions trough the collection and dissemination of reliable information on the social and economic returns that are associated with participation. Further, the scope for public policy to effect change is clearer with respect to the unemployed, immigrants and persons who are outside the paid labor force.

Public policy could also seek to build on adult education as part of a wider strategy for encouraging life-long and life-wide learning. This would involve strengthening learning environments in schools, adult education centers, work places, homes and surrounding communities. Empowering individuals and their families to manage their own life-long learning careers is perhaps the most important consideration. The voluntary sector and non-governmental associations can contribute to this end because they provide community-based and effective environments for various kinds of informal learning that foster democratic values and help keep individuals mentally and socially active.

Learning is key not only to the formation of human capital but also to the strengthening of social and cultural resources. In order to engage *all* citizens, public policy would have to build on the strengths of local communities because the voluntary sector can deliver adult

education programs and reach out to adults who otherwise might not enroll in formal courses. It is this broad vision of adult education partnerships – straddling life-long learning in schools, at work, at home and in local communities – that invites the attention of policy makers.

3.3 Issues for Further Study

People with relatively little schooling and those with poor literacy skills had a low probability of receiving further education during the survey period. In fact, the majority of adults in both Canada and the United States were not counted among the participant groups in the mid-1990s. Whether and to what extent this unequal distribution of opportunities to learn in formal settings has changed since then is an important consideration.

The data presented in this monograph referred to a specific one-year reference period in the mid to late 1990s, depending on the country. To properly monitor the development of life-long learning for adults, it is important that a longer time span be applied as well, so that one can ask whether the same persons were receiving adult education and training year after year or whether, over time, a large majority of the population was engaged in adult learning. To answer such questions longitudinal surveys are ideally needed.[30]

Another question for future research is related to the possible substitution effects that may exist between formal, non-formal and informal modes of learning. In order to investigate this issue, more empirical information than currently available is needed on the volume, distribution and effects of both non-formal learning at work and informal learning in daily life, and whether such learning is a substitute or a complement to education or training taken in formal settings. There is also a need to understand the particular circumstances and objectives surrounding the informal learning process.

There are further important gaps in our knowledge base about adult education.[31] A major one concerns the relationship between different learning patterns and the acquisition of various key skills and competencies. Another concerns the relationship between acquired skills and the social, economic and labor market outcomes of individuals and firms. There are also questions about skill depreciation that should be given closer attention, since research evidence suggests that processes of skill loss play an important role in reducing the stock of skills available to labor markets. Little is known about the mechanisms associated with these losses and how participation in formal learning might prevent them.

These issues can be properly addressed only with the use of a micro data set that contains reliable information on a range of variables at both the individual and firm level. At a minimum these would include socio-demographic measures and information on formal educational attainment and subsequent adult learning in both formal and informal settings at work and in daily life, assessed proficiency in several key skill domains, and social and economic outcome variables for individuals and firms. Important steps towards the building of such a data set are currently under way in both America and Canada.

30. Longitudinal studies are those in which the same persons are followed up over time. A Swedish longitudinal study in which a group of men was followed for more than 50 years found strong evidence confirming the cumulative nature of adult education (Tuijnman, 1989).

31. Key knowledge gaps and research questions about adult education are identified in Baran *et al.* (2000); Binkley *et al.* (2000); Boudard *et al.* (2001); Crouch *et al.* (1999); OECD (1997 and 1999b); Rubenson and Schuetze (2000); and Statistics Canada and Human Resources Development Canada (2001).

ANNEX A

National Scores and Standard Errors

TABLE 1

Rate[1] of participation in adult education and training, general and employed population aged 25-65, 1994-1998

	General		Employed	
Australia	34.3	(0.8)	41.0	(0.9)
Belgium (Flanders)	21.2	(1.1)	26.5	(1.4)
Canada	34.6	(1.3)	40.1	(2.9)
Chile	18.4	(1.0)	22.1	(1.3)
Czech Republic	25.4	(0.9)	31.7	(1.3)
Denmark	54.9	(0.7)	59.7	(1.0)
Finland	55.8	(0.9)	67.3	(1.1)
Hungary	17.6	(0.7)	27.3	(1.3)
Ireland	21.9	(2.6)	29.2	(3.2)
Italy	21.3	(1.3)	28.4	(1.7)
Netherlands	35.6	(1.0)	42.3	(1.1)
New Zealand	43.9	(1.3)	49.9	(1.6)
Norway	46.6	(1.4)	52.4	(1.5)
Poland	13.7	(0.8)	19.9	(1.4)
Portugal	12.9	(1.1)	16.7	(1.8)
Slovenia	31.2	(1.1)	40.8	(1.4)
Sweden	53.4	(1.1)	60.2	(1.1)
Switzerland	40.8	(1.2)	45.0	(1.4)
United Kingdom	41.3	(0.7)	51.7	(1.0)
United States	38.8	(1.2)	45.4	(1.5)
Average	**33.7**	(0.5)	**41.4**	(0.7)

1. People with less than 6 hours total training are excluded.
Note: Germany is excluded because the survey did not ask about adult education and training in a comparable way.
Source: International Adult Literacy Survey, 1994-1998.

TABLE 2

Mean number[1] of hours spent on adult education and training per participant and per capita, population aged 25-65, 1994-1998

	Per participant		Per capita
Australia	171.1	(6.4)	58.7
Belgium (Flanders)	130.0	(16.2)	27.6
Canada	214.6	(49.5)	74.3
Chile	220.3	(20.5)	40.6
Czech Republic	175.7	(22.0)	44.5
Denmark	204.1	(10.6)	112.1
Finland	190.2	(8.1)	106.2
Hungary	172.0	(15.8)	30.2
Ireland	234.4	(19.2)	51.4
Italy	177.2	(15.7)	37.7
Netherlands	184.0	(15.8)	65.6
New Zealand	214.3	(16.5)	94.1
Norway	186.3	(8.2)	86.8
Poland	141.7	(20.8)	19.3
Slovenia	182.1	(13.2)	56.8
Switzerland	127.6	(7.9)	52.0
United Kingdom	135.5	(9.6)	56.0
United States	119.5	(7.8)	46.4
Average	**142.9**	(5.6)	**48.2**

1. People with less than 6 hours total training are excluded. Mean number of hours per capita = Mean number of hours per participant x Participation rate /100.

Note: Germany is excluded because the survey did not ask about adult education and training in a comparable way. Sweden and Portugal did not ask about training duration.

Source: International Adult Literacy Survey, 1994-1998.

TABLE 3

Rate[1] of participation in adult education and training of general population aged 25-65 without completed high school or equivalent and population aged 25-65 with some college or university education, 1994-1998

	Without completed high school or equivalent		With some college or university education	
Australia	21.6	(0.8)	54.6	(1.1)
Belgium (Flanders)	8.6	(1.3)	41.6	(1.8)
Canada	18.1	(3.2)	53.8	(3.1)
Chile	8.5	(0.9)	43.6	(2.9)
Czech Republic	16.2	(0.9)	47.9	(2.3)
Denmark	35.9	(1.8)	74.1	(2.0)
Finland	31.4	(2.0)	79.1	(2.0)
Hungary	5.6	(1.4)	45.0	(2.5)
Ireland	12.6	(2.0)	45.9	(3.6)
Italy	8.7	(1.1)	50.4	(3.0)
Netherlands	23.5	(1.6)	50.5	(2.3)
New Zealand	33.5	(1.8)	62.0	(2.0)
Norway	24.7	(4.3)	64.5	(1.6)
Poland	6.0	(0.6)	33.6	(2.9)
Portugal	7.8	(1.2)	51.1	(2.6)
Slovenia	9.3	(1.2)	72.5	(2.2)
Sweden	34.7	(1.6)	68.2	(1.6)
Switzerland	16.9	(3.1)	58.0	(2.6)
United Kingdom	29.9	(1.0)	67.2	(1.6)
United States	11.5	(2.1)	59.1	(2.0)
Average	**15.5**	(0.5)	**57.6**	(1.1)

1. People with less than 6 hours total training are excluded.
Note: Germany is excluded because the survey did not ask about adult education and training in a comparable way.
Source: International Adult Literacy Survey, 1994-1998.

TABLE 4

Rate[1] of participation in job-related training by gender, employed population aged 25-65 and 36-45, 1994-1998

	25-65		
	Male	Female	All
Australia	37.4 (1.4)	36.6 (1.2)	37.1 (0.9)
Belgium (Flanders)	20.6 (1.7)	17.4 (1.8)	19.4 (1.4)
Canada	36.4 (2.9)	34.9 (3.5)	35.7 (2.3)
Chile	14.5 (1.4)	19.7 (1.7)	16.2 (1.1)
Czech Republic	29.2 (1.6)	21.7 (2.0)	25.8 (1.3)
Denmark	51.5 (1.2)	56.5 (1.4)	53.7 (1.0)
Finland	49.0 (2.0)	50.4 (1.8)	49.7 (1.3)
Hungary	16.8 (1.8)	22.5 (2.3)	19.6 (1.3)
Ireland	20.2 (3.1)	28.1 (2.6)	23.1 (2.3)
Italy	24.4 (2.0)	23.9 (2.3)	24.3 (1.6)
Netherlands	34.1 (1.8)	27.9 (1.6)	31.8 (1.3)
New Zealand	43.2 (2.1)	44.9 (2.0)	44.0 (1.5)
Norway	47.3 (2.2)	51.7 (2.1)	49.3 (1.4)
Poland	16.1 (1.1)	16.0 (1.5)	16.1 (1.1)
Slovenia	32.3 (1.7)	33.2 (2.0)	32.7 (1.3)
Switzerland	33.0 (1.8)	29.0 (2.2)	31.3 (1.4)
United Kingdom	47.6 (1.7)	47.8 (2.1)	47.7 (1.3)
United States	41.8 (1.9)	42.5 (1.8)	42.1 (1.4)
Average	**36.6** (0.9)	**37.9** (0.9)	**37.2** (0.7)

	36-45		
	Male	Female	All
Australia	40.8 (2.7)	41.5 (2.3)	41.1 (1.9)
Belgium (Flanders)	18.2 (2.2)	15.0* (2.9)	17.0 (1.8)
Canada	38.5 (4.0)	37.7 (6.7)	38.2 (3.6)
Chile	13.0 (1.9)	24.9 (3.7)	16.8 (1.7)
Czech Republic	25.7 (3.8)	21.0 (3.4)	23.2 (2.2)
Denmark	55.0 (2.2)	63.3 (2.8)	58.9 (1.7)
Finland	52.1 (3.1)	51.2 (3.1)	51.7 (1.9)
Hungary	18.2 (2.0)	15.1 (2.3)	16.7 (1.2)
Ireland	21.0 (4.5)	28.7 (3.4)	23.8 (3.0)
Italy	24.6 (2.5)	26.1 (3.2)	25.2 (2.2)
Netherlands	37.8 (2.8)	30.2 (3.4)	34.9 (2.2)
New Zealand	44.4 (3.2)	47.3 (3.0)	45.7 (2.2)
Norway	46.7 (3.0)	55.2 (3.5)	50.5 (1.9)
Poland	17.8 (2.2)	17.8 (2.8)	17.8 (1.7)
Slovenia	32.2 (2.7)	35.5 (3.4)	33.7 (2.0)
Switzerland	29.4 (3.1)	29.2 (4.4)	29.3 (3.0)
United Kingdom	49.8 (3.1)	53.7 (3.9)	51.5 (2.2)
United States	45.0 (2.8)	41.4 (3.1)	43.4 (1.8)
Average	**38.7** (1.5)	**37.9** (1.7)	**38.4** (1.0)

* Estimate based on less than 30 cases.

1. People with less than 6 hours total training are excluded.

Note: Germany is excluded because the survey did not ask about adult education and training in a comparable way. Sweden and Portugal did not ask about job-related training in a comparable way.

Source: International Adult Literacy Survey, 1994-1998.

TABLE 5

Rate[1] of participation in job-related training, employed population aged 25-65 by 10-year intervals, 1994-1998

	25-35		36-45		46-55		56-65		25-65	
Australia	41.7	(1.3)	41.1	(1.9)	30.6	(1.8)	22.4	(2.4)	37.1	(0.9)
Belgium (Flanders)	20.1	(2.0)	17.0	(1.8)	21.3	(3.0)	20.7*	(6.4)	19.4	(1.4)
Canada	35.9	(4.1)	38.2	(3.6)	34.0	(4.3)	29.9	(7.8)	35.7	(2.3)
Chile	21.1	(2.5)	16.8	(1.7)	11.0	(2.4)	5.7*	(1.5)	16.2	(1.1)
Czech Republic	28.3	(2.1)	23.2	(2.2)	27.0	(2.0)	22.0*	(4.0)	25.8	(1.3)
Denmark	56.6	(2.0)	58.9	(1.7)	52.0	(2.1)	37.4	(4.2)	53.7	(1.0)
Finland	55.8	(2.6)	51.7	(1.9)	43.8	(2.1)	39.7	(5.1)	49.7	(1.3)
Hungary	24.7	(2.6)	16.7	(1.2)	17.8	(2.7)	14.6*	(5.3)	19.6	(1.3)
Ireland	26.0	(2.6)	23.8	(3.0)	20.9	(3.7)	12.8*	(4.2)	23.1	(2.3)
Italy	25.4	(2.4)	25.2	(2.2)	22.8	(2.5)	20.1*	(4.5)	24.3	(1.6)
Netherlands	35.4	(2.0)	34.9	(2.2)	26.0	(2.9)	15.5*	(3.9)	31.8	(1.3)
New Zealand	48.1	(2.2)	45.7	(2.2)	43.5	(2.9)	26.0	(5.2)	44.0	(1.5)
Norway	54.1	(1.9)	50.5	(1.9)	49.2	(3.7)	31.5	(4.0)	49.3	(1.4)
Poland	16.3	(1.6)	17.8	(1.7)	13.8	(1.8)	9.5*	(4.1)	16.1	(1.1)
Slovenia	36.0	(2.2)	33.7	(2.0)	25.2	(2.4)	32.9*	(6.6)	32.7	(1.3)
Switzerland	36.1	(2.6)	29.3	(3.0)	29.7	(2.9)	25.2	(2.6)	31.3	(1.4)
United Kingdom	55.2	(2.0)	51.5	(2.2)	41.8	(2.3)	27.1	(3.1)	47.7	(1.3)
United States	42.9	(2.8)	43.4	(1.8)	43.4	(2.9)	34.7	(4.6)	42.1	(1.4)
Average	**38.8**	(1.5)	**38.4**	(1.0)	**36.5**	(1.4)	**30.0**	(2.8)	**37.2**	(0.7)

* Estimate based on less than 30 cases.

1. People with less than 6 hours total training are excluded.

Note: Germany is excluded because the survey did not ask about adult education and training in a comparable way. Sweden and Portugal did not ask about job-related training in a comparable way.

Source: International Adult Literacy Survey, 1994-1998.

TABLE 6

Rate[1] of participation in job-related training among employed and unemployed populations aged 25-65, 1994-1998

	Employed		Unemployed	
Australia	37.1	(0.9)	23.4	(2.8)
Belgium (Flanders)	19.4	(1.4)	8.6*	(2.5)
Canada	35.7	(2.3)	21.2	(7.6)
Chile	16.2	(1.1)	9.9*	(3.3)
Czech Republic	25.8	(1.3)	12.1*	(4.0)
Denmark	53.7	(1.0)	38.8	(4.0)
Finland	49.7	(1.3)	11.6*	(1.9)
Hungary	19.6	(1.3)	6.1*	(2.0)
Ireland	23.1	(2.3)	7.1*	(2.8)
Italy	24.3	(1.6)	10.4*	(3.2)
Netherlands	31.8	(1.3)	29.4	(4.4)
New Zealand	44.0	(1.5)	23.8	(4.1)
Norway	49.3	(1.4)	26.7	(5.0)
Poland	16.1	(1.1)	2.4*	(1.5)
Slovenia	32.7	(1.3)	9.1*	(1.9)
Switzerland	31.3	(1.4)	26.9*	(8.5)
United Kingdom	47.7	(1.3)	23.0	(2.8)
United States	42.1	(1.4)	26.8*	(4.6)
Average	**37.2**	(0.7)	**18.8**	(1.8)

* Estimate based on less than 30 cases.

1. People with less than 6 hours total training are excluded.

Note: Germany is excluded because the survey did not ask about adult education and training in a comparable way. Sweden and Portugal did not ask about job-related training in a comparable way.

Source: International Adult Literacy Survey, 1994-1998.

TABLE 7

Rate[1] of participation and average duration in hours of job-related adult education and training, employed population aged 25-65 by occupational category, 1994-1998

	Blue-collar low-skill		White-collar high-skill	
	Participation rate	Mean number of hours per participant	Participation rate	Mean number of hours per participant
Australia	21.1 (1.7)	143.0 (25.0)	51.0 (1.5)	155.8 (12.7)
Canada	21.8 (2.7)	261.6 (72.7)	49.2 (7.5)	96.3 (17.5)
Chile	6.0 (1.5)	188.8 (91.8)	38.7 (2.8)	157.7 (23.1)
Czech Republic	17.9 (1.9)	64.3 (19.1)	35.3 (2.4)	163.2 (20.7)
Denmark	29.8 (2.9)	152.2 (20.8)	69.3 (2.0)	119.2 (7.6)
Finland	24.6 (3.2)	100.6 (29.0)	62.2 (1.7)	148.4 (13.6)
Hungary	10.3 (2.5)	121.7 (38.9)	32.8 (2.7)	172.4 (33.6)
Ireland	11.2 (2.6)	84.1 (38.4)	38.0 (2.3)	221.9 (45.4)
Italy	8.5 (1.3)	43.1 (11.3)	45.9 (2.9)	99.0 (10.4)
Netherlands	20.0 (3.4)	198.0 (45.0)	36.4 (1.4)	162.0 (26.9)
New Zealand	30.4 (3.7)	138.7 (39.9)	61.7 (2.3)	152.7 (18.5)
Norway	27.5 (4.3)	140.3 (29.3)	60.2 (2.3)	129.1 (6.5)
Poland	9.0 (1.9)	82.6 (21.4)	30.6 (2.6)	141.2 (25.0)
Slovenia	13.9 (1.9)	104.0 (32.6)	57.6 (2.7)	171.8 (23.0)
Switzerland	17.3 (3.2)	73.0 (22.9)	41.1 (2.2)	114.4 (9.7)
United Kingdom	24.5 (3.1)	74.3 (15.7)	63.3 (2.1)	107.0 (11.4)
United States	14.5 (2.4)	163.9 (56.1)	59.2 (2.4)	92.5 (10.8)
Average	**15.5** (1.1)	**105.5** (6.7)	**54.0** (1.1)	**138.1** (24.3)

1. People with less than 6 hours total training are excluded.

Note: Germany is excluded because the survey did not ask about adult education and training in a comparable way. Sweden and Portugal did not ask about job-related training in a comparable way. Belgium did not ask about occupation in a comparable way.

Source: International Adult Literacy Survey, 1994-1998.

TABLE 8

Percentage[1] of participants in adult education and training who said they had received financial support from various sources, population aged 25-65, 1994-1998

	Government support		Self or family support		Employer support	
Australia	8.3	(0.6)	33.4	(1.3)	56.1	(1.5)
Belgium (Flanders)	11.7	(1.9)	37.2	(3.0)	49.9	(3.0)
Canada	17.0	(4.0)	37.3	(3.2)	51.1	(5.4)
Chile	18.7	(2.4)	27.0	(2.4)	42.5	(3.8)
Czech Republic	8.2	(0.9)	25.5	(2.0)	74.3	(2.2)
Denmark	21.8	(1.1)	20.9	(1.0)	61.4	(1.3)
Finland	11.9	(0.9)	21.9	(1.0)	63.1	(1.3)
Hungary	14.1	(2.6)	32.0	(3.5)	64.7	(3.8)
Ireland	12.3	(2.1)	36.9	(2.5)	41.1	(2.6)
Italy	28.2	(2.4)	33.2	(2.1)	36.8	(1.9)
Netherlands	7.3	(1.0)	40.1	(1.7)	52.6	(1.7)
New Zealand	16.0	(1.4)	36.1	(1.6)	56.0	(1.7)
Norway	27.3	(1.1)	19.0	(1.1)	77.5	(1.8)
Poland	5.6*	(0.9)	29.3	(2.2)	61.9	(3.0)
Slovenia	20.0	(2.1)	23.5	(1.6)	66.7	(2.1)
Switzerland	13.6	(1.5)	51.5	(2.2)	42.5	(1.7)
United Kingdom	9.2	(0.9)	16.4	(1.1)	71.5	(1.5)
United States	6.7	(1.2)	27.2	(1.5)	66.8	(2.3)
Average	**10.1**	(0.7)	**27.4**	(0.9)	**63.2**	(1.5)

* Estimate based on less than 30 cases.

1. People with less than 6 hours total training are excluded.

Note: Germany is excluded because the survey did not ask about adult education and training in a comparable way. Portugal did not ask about source of financial support. The Swedish survey only asked about employer-sponsored training. Respondents could indicate they received financial support from more than one source because they were asked this question for up to three courses. Hence the totals may exceed 100 percent for a country.

Source: International Adult Literacy Survey, 1994-1998.

TABLE 9

Odds[a] of participating in employer-sponsored adult education and training, by document literacy levels and by extent of literacy engagement at work, population aged 25-65[b], 1994-1998

	Document literacy level			
	1st quartile	2nd quartile	3rd quartile	4th quartile
Australia	1.00	2.52[1] (0.16)	4.34[1] (0.15)	7.16[1] (0.16)
Canada	1.00	2.90[1] (0.27)	5.26[1] (0.26)	10.31[1] (0.26)
Chile	1.00	2.95[1] (0.20)	5.71[1] (0.23)	11.01[1] (0.44)
Czech Republic	1.00	1.85[1] (0.20)	1.75[1] (0.19)	2.36[1] (0.20)
Denmark	1.00	2.24[1] (0.26)	3.67[1] (0.25)	5.56[1] (0.25)
Finland	1.00	2.36[1] (0.23)	4.18[1] (0.22)	5.20[1] (0.23)
Hungary	1.00	1.33* (0.23)	2.27[1] (0.23)	7.12[1] (0.28)
Ireland	1.00	1.27* (0.35)	3.10[1] (0.31)	3.91[1] (0.34)
Italy	1.00	3.04[1] (0.23)	3.17[1] (0.24)	5.62[1] (0.29)
Netherlands	1.00	2.08[2] (0.33)	3.09[1] (0.32)	4.65[1] (0.32)
New Zealand	1.00	1.85[1] (0.18)	2.81[1] (0.17)	4.53[1] (0.18)
Norway	1.00	3.44[1] (0.28)	5.71[1] (0.27)	8.66[1] (0.28)
Poland	1.00	1.48[2] (0.20)	1.93[1] (0.21)	3.33[1] (0.27)
Slovenia	1.00	3.19[1] (0.15)	5.51[1] (0.15)	4.25[1] (0.25)
Sweden	1.00	1.53* (0.27)	2.57[1] (0.25)	2.65[1] (0.25)
Switzerland	1.00	2.13[1] (0.19)	3.34[1] (0.18)	5.05[1] (0.20)
United Kingdom	1.00	1.33[1] (0.11)	2.87[1] (0.10)	3.98[1] (0.11)
United States	1.00	2.14[1] (0.19)	3.92[1] (0.17)	4.90[1] (0.18)
Average	**1.00**	**2.12**[1] (0.04)	**3.95**[1] (0.04)	**5.82**[1] (0.04)

	Literacy engagement at work			
	1st quartile	2nd quartile	3rd quartile	4th quartile
Australia	1.00	2.90[1] (0.14)	7.61[1] (0.14)	12.10[1] (0.14)
Canada	1.00	3.11[1] (0.20)	5.35[1] (0.20)	7.34[1] (0.19)
Chile	1.00	7.02[1] (0.30)	17.89[1] (0.28)	16.63[1] (0.28)
Czech Republic	1.00	1.87[1] (0.15)	3.11[1] (0.16)	5.56[1] (0.17)
Denmark	1.00	3.04[1] (0.20)	6.38[1] (0.19)	9.12[1] (0.19)
Finland	1.00	2.94[1] (0.18)	7.43[1] (0.19)	10.43[1] (0.20)
Hungary	1.00	3.41[1] (0.23)	4.62[1] (0.24)	7.98[1] (0.27)
Ireland	1.00	2.04[1] (0.30)	3.25[1] (0.29)	6.50[1] (0.27)
Italy	1.00	4.49[1] (0.27)	7.41[1] (0.27)	11.30[1] (0.27)
Netherlands	1.00	2.76[1] (0.23)	5.63[1] (0.22)	9.23[1] (0.21)
New Zealand	1.00	2.22[1] (0.21)	6.10[1] (0.19)	9.27[1] (0.19)
Norway	1.00	2.18[1] (0.16)	4.42[1] (0.16)	7.09[1] (0.16)
Poland	1.00	3.63[1] (0.22)	6.58[1] (0.23)	8.06[1] (0.25)
Slovenia	1.00	3.14[1] (0.15)	6.72[1] (0.16)	7.99[1] (0.18)
Sweden	1.00	3.10[1] (0.20)	5.20[1] (0.20)	8.16[1] (0.20)
Switzerland	1.00	2.52[1] (0.24)	6.72[1] (0.23)	10.55[1] (0.23)
United Kingdom	1.00	2.74[1] (0.11)	5.79[1] (0.11)	9.66[1] (0.11)
United States	1.00	3.03[1] (0.21)	6.91[1] (0.19)	11.09[1] (0.19)
Average	**1.00**	**3.28**[1] (0.05)	**7.15**[1] (0.04)	**11.41**[1] (0.04)

* Not significantly different from 0 at the 5% level of statistical significance.

1. $p < .01$.
2. $p < .05$.

a. Standard errors are of the logarithm of the odds ratio.

b. People who obtained less than 6 hours of training are excluded.

Note: Belgium (Flanders) is excluded because the survey did not ask about occupation in a comparable way. Germany is excluded because the survey did not ask about adult education and training in a comparable way. Portugal did not ask about source of financial support.

Source: International Adult Literacy Survey, 1994-1998.

TABLE 10

Rate[1] of participation, average duration and training effort per employee of job-related adult education and training, employed population aged 25-65 by firm size, 1994-1998

A. Firm size, rate of training

	Less than 20		20-99		100-499		500 and over	
Australia	22.8	(1.2)	35.7	(2.4)	43.9	(4.5)	44.8	(3.4)
Belgium (Flanders)	14.6	(1.7)	15.3	(2.7)	27.3*	(5.5)	21.9	(4.1)
Canada	30.0	(5.8)	39.8	(9.7)	15.9	(7.0)	29.3	(14.3)
Chile	5.3	(0.9)	14.4	(3.0)	25.6*	(7.9)	36.8	(6.9)
Czech Republic	19.4	(2.3)	19.5	(1.4)	28.8	(5.6)	31.1	(4.4)
Denmark	39.8	(1.8)	53.4	(2.8)	57.4	(3.6)	59.8	(5.4)
Finland	35.1	(2.4)	51.1	(3.0)	46.0	(5.9)	61.5	(3.7)
Hungary	11.4	(2.0)	23.8	(2.0)	15.4*	(4.3)	14.2*	(2.9)
Ireland	10.8*	(2.3)	17.4*	(4.3)	24.3*	(6.3)	29.8*	(6.9)
Italy	12.4	(2.0)	14.9	(1.9)	21.6*	(7.5)	32.3*	(4.4)
New Zealand	26.5	(2.2)	53.6	(4.5)	47.6	(8.2)	58.6	(5.3)
Norway	40.3	(2.1)	47.8	(3.0)	49.6	(3.2)	53.5	(2.7)
Poland	8.8	(1.7)	21.4	(2.9)	20.8*	(3.0)	13.8*	(4.2)
Slovenia	25.7	(2.7)	37.0	(3.5)	28.8	(4.2)	31.5	(2.8)
Switzerland	26.3	(2.2)	24.7	(3.4)	29.0	(3.6)	35.8	(8.4)
United Kingdom	26.5	(3.3)	41.2	(3.0)	43.2	(6.3)	56.5	(5.5)
United States	28.8	(2.9)	34.5	(2.3)	32.1	(5.6)	40.9	(5.5)
Average	**22.7**	(1.5)	**31.6**	(1.3)	**30.5**	(3.2)	**38.8**	(3.1)

B. Firm size, training duration

	Less than 20		20-99		100-499		500 and over	
Australia	141.4	(16.8)	162.5	(27.4)	142.7	(23.2)	175.7	(41.4)
Belgium (Flanders)	101.0	(18.9)	89.0	(23.7)	127.8*	(39.7)	275.1*	(127.6)
Canada	145.4	(35.3)	142.8	(83.0)	75.4	(18.3)	86.0	(52.5)
Chile	120.2	(40.5)	187.9	(69.0)	126.0*	(50.4)	228.9	(95.6)
Czech Republic	76.9	(10.4)	159.6	(68.6)	171.5	(62.7)	111.0	(26.9)
Denmark	124.6	(18.1)	100.5	(10.0)	126.8	(16.9)	124.5	(16.0)
Finland	144.9	(21.9)	178.3	(24.7)	172.6	(36.7)	135.2	(31.2)
Hungary	189.1*	(66.2)	179.7	(62.7)	200.8*	(82.0)	149.6*	(42.6)
Ireland	215.2*	(57.8)	121.8*	(24.1)	362.5*	(229.5)	215.9*	(108.2)
Italy	108.9	(23.9)	91.3	(20.7)	60.3*	(18.8)	73.6*	(16.4)
New Zealand	142.2	(20.9)	160.3	(35.3)	241.0	(137.9)	210.0	(69.1)
Norway	98.3	(13.4)	121.7	(17.3)	120.8	(23.7)	107.0	(15.4)
Poland	76.8	(21.9)	138.8	(33.0)	153.9*	(78.3)	85.1*	(45.1)
Slovenia	190.3	(32.4)	112.3	(19.1)	112.3	(40.7)	223.9	(95.1)
Switzerland	116.0	(24.9)	142.5	(34.1)	149.0	(28.1)	83.4	(16.0)
United Kingdom	94.1	(15.5)	95.6	(26.3)	84.6	(17.8)	96.0	(24.2)
United States	77.7	(13.5)	89.5	(23.0)	122.5	(36.1)	72.1	(22.7)
Average	**94.7**	(8.7)	**107.5**	(14.6)	**120.1**	(19.9)	**89.5**	(15.4)

* Estimate based on less than 30 cases.

1. People with less than 6 hours total training are excluded.

Note: Germany is excluded because the survey did not ask about adult education and training in a comparable way. The Netherlands, Portugal and Sweden did not ask about firm size.

Source: International Adult Literacy Survey, 1994-1998.

TABLE 10 (concluded)

Rate[1] of participation, average duration and training effort per employee of job-related adult education and training, employed population aged 25-65 by firm size, 1994-1998

C. Firm size, training effort per employee (hours)

	Less than 20	20-99	100-499	500 and over
Australia	32.3	58.0	62.7	78.7
Belgium (Flanders)	14.8	13.6	34.8	60.2
Canada	43.6	56.8	12.0	25.2
Chile	6.3	27.1	32.3	84.2
Czech Republic	14.9	31.2	49.5	34.5
Denmark	49.6	53.6	72.8	74.4
Finland	50.8	91.1	79.4	83.1
Hungary	21.6	42.7	31.0	21.2
Ireland	23.3	21.2	88.1	64.4
Italy	13.5	13.6	13.0	23.8
New Zealand	37.8	85.9	114.8	123.0
Norway	39.6	58.2	59.9	57.3
Poland	6.8	29.7	32.0	11.7
Slovenia	49.0	41.6	32.4	70.6
Switzerland	30.5	35.2	43.3	29.9
United Kingdom	24.9	39.4	36.5	54.3
United States	22.4	30.9	39.4	29.4
Average	**21.5**	**34.0**	**36.7**	**34.7**

1. People with less than 6 hours total training are excluded.

Note: Germany is excluded because the survey did not ask about adult education and training in a comparable way. The Netherlands, Portugal and Sweden did not ask about firm size.

Source: International Adult Literacy Survey, 1994-1998.

TABLE 11

Percentage[1] of the employed population aged 25-65 who (a) did not receive job-related training and (b) wanted to participate but did not, 1994-1998

	(a) Percentage who did not receive job-related training		(b) Percentage who wanted to participate but did not	
Australia	62.9	(0.9)	23.4	(1.2)
Belgium (Flanders)	80.6	(1.4)	17.1	(1.6)
Canada	64.3	(2.3)	27.9	(7.8)
Chile	83.8	(1.1)	29.0	(1.7)
Czech Republic	74.2	(1.3)	12.7	(0.6)
Denmark	46.3	(1.0)	31.3	(1.8)
Finland	50.3	(1.3)	40.4	(2.0)
Hungary	80.4	(1.3)	14.3	(1.4)
Ireland	76.9	(2.3)	15.3	(2.3)
Italy	75.7	(1.6)	20.3	(1.8)
Netherlands	68.2	(1.3)	22.5	(1.1)
New Zealand	56.0	(1.5)	28.3	(1.9)
Norway	50.7	(1.4)	30.5	(2.2)
Poland	83.9	(1.1)	14.4	(1.4)
Slovenia	67.3	(1.3)	20.5	(1.5)
Switzerland	68.7	(1.4)	28.4	(1.7)
United Kingdom	52.3	(1.3)	19.8	(1.2)
United States	57.9	(1.4)	19.6	(1.7)
Average	**62.8**	(0.7)	**20.4**	(0.8)

1. People with less than 6 hours total training are excluded.

Note: Germany is excluded because the survey did not ask about adult education and training in a comparable way. Sweden and Portugal did not ask about job-related training in a comparable way.

Source: International Adult Literacy Survey, 1994-1998.

TABLE 12

Reasons[1] why respondents did not take the adult education or training they either needed or wanted for work-related purpose, population aged 25-65, 1994-1998

	Australia		Belgium (Flanders)		Canada		Chile		Czech Republic		Denmark	
Situational barriers	**65.4**	(2.0)	**79.7**	(3.3)	**71.8**	(4.1)	**72.9**	(2.7)	**77.8**	(4.3)	**59.7**	(3.7)
Lack of time	44.1	(1.8)	57.4	(4.4)	51.4	(8.1)	50.1	(4.0)	44.8	(3.8)	30.2	(3.3)
Too busy at work	12.1	(1.4)	16.0*	(3.1)	11.8	(3.2)	19.6	(2.9)	40.3	(4.4)	31.9	(3.2)
Family responsability	12.1	(1.3)	10.8*	(2.4)	19.9	(5.5)	8.8	(2.8)	22.9	(3.2)	6.8*	(1.5)
Lack of employer support	3.5*	(0.9)	6.1*	(2.1)	6.8*	(3.5)	10.6*	(3.5)	29.8	(4.9)	12.4	(2.1)
Institutional barriers	**33.3**	(1.9)	**17.1***	(3.5)	**39.8**	(3.5)	**45.0**	(3.5)	**71.5**	(4.9)	**30.1**	(2.9)
No money	20.1	(1.6)	8.4*	(3.5)	24.3	(3.1)	32.3	(3.5)	22.2	(4.3)	7.6*	(1.7)
Course not offered	6.7	(0.9)	0.7*	(0.5)	6.6	(2.3)	6.5*	(1.7)	36.2	(4.9)	11.8	(2.2)
Lack of qualification	1.3*	(0.6)	1.5*	(1.6)	1.9*	(2.2)	1.5*	(0.6)	10.8*	(2.8)	3.1*	(1.3)
Inconvenient time	6.3	(1.1)	6.5*	(2.1)	10.8	(3.4)	6.8	(1.6)	26.3	(4.9)	9.6*	(1.4)
Dispositional barriers	**3.3***	(1.0)	**2.3***	(1.7)	**1.1***	(0.7)	**1.1***	(0.5)	**9.8***	(2.7)	**1.7***	(0.8)
Other barriers	**15.9**	(1.4)	**12.4***	(2.7)	**13.6**	(3.4)	**7.9**	(1.6)	**8.4***	(2.4)	**28.2**	(3.3)

TABLE 12 (concluded)

Reasons[1] why respondents did not take the adult education or training they either needed or wanted for work-related purpose, population aged 25-65, 1994-1998

	Finland		Hungary		Ireland		Italy		Netherlands		New Zealand	
Situational barriers	**64.3**	**(2.8)**	**55.8**	**(5.2)**	**65.3**	**(6.9)**	**80.0**	**(3.5)**	**67.9**	**(3.5)**	**79.8**	**(3.2)**
Lack of time	35.9	(3.0)	29.3	(4.5)	36.5	(5.2)	56.7	(4.2)	49.4	(3.2)	62.2	(3.6)
Too busy at work	18.6	(2.3)	20.0*	(4.1)	19.0*	(4.2)	41.6	(4.7)	14.9	(2.9)	50.9	(3.3)
Family responsability	10.5	(1.4)	8.1*	(2.7)	12.6*	(3.9)	19.0	(3.0)	8.2*	(1.4)	40.9	(3.5)
Lack of employer support	17.1	(2.2)	19.2*	(3.9)	3.4*	(2.4)	13.5	(3.0)	8.8*	(1.8)	9.4	(1.7)
Institutional barriers	**48.9**	**(3.5)**	**53.7**	**(4.6)**	**44.1**	**(6.6)**	**39.1**	**(3.5)**	**28.4**	**(2.7)**	**64.0**	**(4.1)**
No money	13.2	(1.9)	33.4	(5.8)	22.8*	(4.3)	15.4	(3.9)	15.4	(2.7)	34.9	(3.2)
Course not offered	24.4	(3.1)	8.9*	(2.9)	13.4*	(4.6)	13.9	(2.9)	5.5*	(1.3)	12.3	(2.8)
Lack of qualification	2.2*	(1.0)	2.4*	(1.9)	3.2*	(1.8)	5.9*	(3.1)	1.3*	(0.8)	6.3*	(2.2)
Inconvenient time	14.0	(2.0)	12.8*	(4.6)	8.0*	(3.4)	15.8	(3.9)	6.5*	(1.8)	34.9	(3.4)
Dispositional barriers	**3.8***	**(1.1)**	**2.6***	**(1.1)**	**0.9***	**(1.0)**	**2.7***	**(1.9)**	**3.0***	**(1.1)**	**3.3***	**(1.2)**
Other barriers	**14.0**	**(1.7)**	**15.7***	**(3.8)**	**3.2***	**(2.1)**	**10.0***	**(2.5)**	**12.7**	**(2.4)**	**14.2**	**(2.6)**

	Norway		Poland		Slovenia		Switzerland		United Kingdom		United States		Average	
Situational barriers	**56.1**	**(3.3)**	**59.9**	**(4.4)**	**70.7**	**(3.3)**	**66.9**	**(4.0)**	**58.9**	**(4.5)**	**72.8**	**(3.2)**	**70.5**	**(1.6)**
Lack of time	31.8	(2.9)	42.4	(5.8)	47.6	(4.0)	45.3	(4.2)	30.5	(4.3)	49.6	(4.0)	47.3	(2.0)
Too busy at work	17.3	(2.9)	18.5*	(1.7)	12.1*	(2.4)	18.6	(3.4)	18.5	(3.2)	20.9	(3.3)	22.1	(1.6)
Family responsability	8.8*	(1.9)	15.2*	(3.3)	16.5	(2.2)	10.8	(2.2)	13.5	(2.7)	13.8	(2.5)	14.4	(1.3)
Lack of employer support	7.1*	(2.0)	10.7*	(1.9)	11.9*	(2.0)	10.6	(2.4)	13.4	(2.8)	5.6*	(1.9)	8.8	(0.9)
Institutional barriers	**42.1**	**(3.7)**	**40.1**	**(2.9)**	**48.1**	**(3.3)**	**33.5**	**(3.2)**	**48.8**	**(3.8)**	**42.5**	**(4.3)**	**41.9**	**(1.9)**
No money	14.2	(2.3)	26.4	(4.0)	28.3	(3.2)	13.2	(2.1)	24.3	(3.1)	34.0	(3.8)	26.8	(1.6)
Course not offered	20.7	(3.3)	16.1*	(3.2)	13.0	(1.7)	16.2	(2.8)	14.1	(2.3)	2.6*	(1.2)	8.0	(0.7)
Lack of qualification	1.3*	(0.7)	1.3*	(1.0)	0.8*	(0.6)	1.4*	(0.5)	0.9*	(0.8)	0.3*	(0.2)	1.6	(0.4)
Inconvenient time	7.1*	(1.5)	7.0*	(1.3)	9.0*	(2.6)	7.1	(1.8)	12.8	(2.2)	7.2*	(2.2)	9.5	(1.2)
Dispositional barriers	**4.0***	**(1.2)**	**3.9***	**(1.9)**	**2.7***	**(1.2)**	**3.0***	**(1.0)**	**5.7***	**(1.9)**	**2.0***	**(1.1)**	**2.7**	**(0.5)**
Other barriers	**13.6**	**(1.4)**	**16.3***	**(5.0)**	**3.1***	**(1.2)**	**16.5**	**(2.9)**	**14.7**	**(4.1)**	**7.1***	**(2.3)**	**10.5**	**(1.1)**

* Estimate based on less than 30 cases.

1. People with less than 6 hours total training are excluded.

Note: Germany is excluded because the survey did not ask about adult education and training in a comparable way.
Sweden and Portugal did not ask about job-related training in a comparable way.
Respondents could indicate more than one reason so totals may exceed 100 percent for a country.

Source: International Adult Literacy Survey, 1994-1998.

TABLE 13

Rate[1] of participation in adult education and training, bottom 40 percent of wage earners versus the top 60 percent of wage earners, population aged 25-65, 1994-1998

	Bottom 40% of wage earners		Top 60% of wage earners	
Australia	25.7	(0.9)	46.0	(1.0)
Belgium (Flanders)	16.9	(1.0)	42.7	(3.2)
Canada	26.2	(2.0)	43.7	(6.1)
Chile	11.2	(1.2)	29.1	(1.9)
Czech Republic	15.0	(1.1)	41.9	(2.2)
Denmark	44.6	(1.2)	61.7	(1.1)
Finland	36.4	(1.6)	70.6	(1.2)
Hungary	7.9	(1.1)	31.9	(1.8)
Ireland	14.5	(2.0)	32.8	(3.6)
Italy	12.8	(1.2)	35.5	(2.1)
Netherlands	27.0	(1.4)	43.0	(1.3)
New Zealand	33.1	(1.9)	52.4	(1.9)
Norway	31.7	(1.8)	54.9	(1.7)
Poland	11.3	(0.8)	23.3	(1.6)
Portugal	7.6	(1.4)	17.0	(1.7)
Slovenia	13.9	(1.2)	52.4	(2.3)
Sweden	47.6	(3.7)	61.0	(1.5)
Switzerland	31.2	(2.8)	48.7	(1.3)
United Kingdom	26.1	(1.1)	58.4	(1.3)
United States	27.9	(1.4)	59.1	(1.9)
Average	**23.7**	(0.7)	**49.9**	(0.8)

1. People with less than 6 hours total training are excluded.
Note: Germany is excluded because the survey did not ask about adult education and training in a comparable way.
Source: International Adult Literacy Survey, 1994-1998.

TABLE 14

Percent of variance (R^2) in adult education participation accounted for by 10 predictor variables (standardised maximum likelihood regression weights, and measures of model fit), population aged 25-55, 1994-1998

	Canada		Denmark		Hungary		Italy		Netherlands		United Sates	
Gender	-		-0.11	(0.02)	-		-		-0.05	(0.02)	-	
Age	-0.06	(0.02)	-		-0.14	(0.02)	-0.05	(0.02)	-0.10	(0.02)	-0.10	(0.02)
Parents' education	0.09	(0.02)	-		-		-		0.07	(0.02)	-	
Native versus foreign language	-		-0.05	(0.02)	-		-		-0.09	(0.02)	-	
Respondent's education	0.14	(0.03)	0.13	(0.02)	-		0.29	(0.03)	-		0.21	(0.03)
Occupational status	-		0.06	(0.03)	0.20	(0.02)	0.12	(0.03)	-0.14	(0.02)	0.07	(0.02)
Labour force participations	-		0.10	(0.02)	0.10	(0.02)	0.19	(0.02)	0.08	(0.03)	0.21	(0.02)
Literacy practices	0.29	(0.02)	0.34	(0.03)	0.14	(0.03)	0.14	(0.03)	0.41	(0.03)	0.22	(0.03)
Literacy proficiency	0.08	(0.03)	-		0.12	(0.02)	-		0.08	(0.02)	0.10	(0.03)
Earnings[1]	-		-		0.23	(0.03)	-		0.06	(0.02)	-	
Adult education participation[2], Explained variance	0.23		0.23		0.32		0.31		0.23		0.34	
Root mean square residual	0.054		0.047		0.056		0.054		0.076		0.066	
Goodness of fit index	0.94		0.93		0.94		0.93		0.89		0.93	

- Estimate not statistically significantly different from zero.
1. For all countries except the Netherlands, earnings are measured by the natural logarithm of continuous wages. For the Netherlands, the earnings variable is measured on a 20-category ordinal scale.
2. The dependent latent variable is measured by the participation rate across three courses and the total number of training hours.
Source: Boudard (2000, p.162).

TABLE 15

Relationship between trust in others and participation in community activities and the participation rate[1] in adult education and training, population aged 25-65, 1994-1998

	Trust in others	Participation in community activities (at least once a month)		Participation in adult education	
Australia	47.8	27.7	(0.8)	34.3	(0.8)
Belgium (Flanders)	30.2	23.6	(1.0)	21.2	(1.1)
Canada	49.6	23.9	(1.6)	34.6	(1.3)
Chile	22.7	21.7	(1.4)	18.4	(1.0)
Czech Republic	-	14.0	(1.1)	25.4	(0.9)
Denmark	56.0	29.5	(1.1)	54.9	(0.7)
Finland	57.2	23.4	(0.9)	55.8	(0.9)
France	24.8	17.1	(0.9)	23.6	(1.0)
Hungary	-	11.4	(0.7)	17.6	(0.7)
Iceland	41.6	-	-	55.0	-
Ireland	40.2	31.7	(1.7)	21.9	(2.6)
Italy	26.3	12.4	(0.7)	21.3	(1.3)
Netherlands	46.2	34.1	(1.0)	35.6	(1.0)
New Zealand	-	35.0	(1.4)	43.9	(1.3)
Norway	61.2	33.5	(1.1)	46.6	(1.4)
Poland	-	8.4	(0.6)	13.7	(0.8)
Portugal	21.4	9.0	(1.3)	12.9	(1.1)
Slovenia	-	17.4	(1.1)	31.2	(1.1)
Sweden	57.1	45.3	(1.3)	53.4	(1.1)
Switzerland	43.2	21.1	(1.3)	40.8	(1.2)
United Kingdom	44.4	19.5	(1.0)	41.3	(0.7)
United States	45.4	33.2	(1.7)	38.8	(1.2)
Average[2]	-	**24.7**	**(0.7)**	**32.8**	**(0.5)**

- Data not provided.

1. People with less than 6 hours total training are excluded.
2. Average computed without Iceland.

Note: Germany is excluded because the survey did not ask about adult education and training in a comparable way. Standard error for Iceland wasn't available, also preliminary investigations show a value close to Nordic countries. Therefore in the Figure 15, Iceland has been set together with other Nordic countries.

Source: International Adult Literacy Survey, 1994-1998, and Knack and Keefer, 1997.

TABLE 16

Basic reference statistics for Canada, the United States and other IALS countries

	Population		GPD per capita US $ 1998	GDP expenditure		Women in labour force 1997 (%)	Highest rate of personal income taxes 1996 (%)	Public sector employment 1996 (% of total employment)	Women in parliament 1997 (%)
	Thousands 1997	Per sq. km. 1997		On R&D 1996 (%)	On education[1] 1996 (%)				
Australia	18,532	2	22,689	1.68	5.6	64.7	47.0	14.8 [d]	25.9
Belgium	10,181	334	24,097	1.59 [b]	-	56.5 [c]	61.0	18.7 [d]	15.8
Canada	30,287	3	24,468	1.64 [d]	7.0	67.8	54.1	18.9 [d]	23.3
Czech Republic	10,304	131	13,137	1.07	5.7	64.4	40.0	-	13.9
Denmark	5,284	123	26,280	2.01	7.1	75.1	58.7	30.5 [d]	37.4
Finland	5,140	15	21,659	2.58	6.6	71.3	57.5	25.1 [d]	33.5
Hungary	10,155	109	10,524	0.66	5.5	49.4	42.0	-	8.3
Ireland	3,661	52	22,509	1.39 [b]	5.3	50.4	48.0	12.6	13.7
Italy	56,868	189	21,739	1.03	4.7	44.1	46.0	15.8 [d]	-
Netherlands	15,609	383	23,082	2.09	4.9	62.2	60.0	13.5 [d]	31.6
New Zealand	3,761	14	17,712	0.97 [b]	-	64.9	33.0	22.1 [a]	29.2
Norway	4,393	14	27,497	1.71 [b]	6.8 [f]	75.8	41.7	30.6 [d]	36.4
Poland	38,650	124	7,986	0.76	-	60.0	40.0	-	12.9
Portugal	9,950	108	15,266	0.58 [b]	5.4	65.1	40.0	16.7 [b]	13.0
Sweden	8,848	20	21,213	3.59 [b]	6.7	74.5	59.6	30.7 [d]	42.7
Switzerland	7,087	172	26,576	2.74	-	69.4	43.9	14.0 [b]	20.3
United Kingdom	59,009	241	21,170	1.94	-	66.8	40.0	14.1	12.3
United States	266,792	28	30,514	2.62 [e]	6.7	71.3	46.6	13.2 [d]	12.5
OECD average	**1,093,792**	**31**	**21,042**	**2.17**	**5.6** [g]	**59.6**	**47.8** [g]	**18.5** [g]	**23.1** [g]

1. Public and private education institutions.
a. 1991.
b. 1995.
c. 1996.
d. 1997.
e. Excluding most or all capital expenditures.
f. Public education only.
g. Unweighted average.

Note: Chile and Slovenia are not Members of the OECD and hence are not represented in the table.

Source: OECD (1999a).

ANNEX B

Data Sources and Methodology

Since the 1970s policy makers and researchers in North America have invested substantial resources in the development of conceptual frameworks and operational tools for the measurement and assessment of literacy proficiency among the adult population.[1] The knowledge, insights and experiences gained from these studies provided a good basis for the development of the design and instrumentation used for the International Adult Literacy Survey (IALS). This was a large-scale household survey assessing the literacy skills of representative samples of the civilian, non-institutionalized population aged 16-65.[2]

The IALS data were collected by trained interviewers in people's homes in 22 countries between 1994 and 1998, depending on the survey cycle in which a country participated.[3] The instruments consisted of two parts: a background questionnaire and a literacy test containing several task booklets duly adapted into the national language(s) from an English-language "master" version. A standard section with questions about participation in adult education and training during the year preceding the interview was part of the background questionnaire. This section, which was specifically developed for the purposes of this survey, is reproduced in Annex C. The master copy also clearly indicated which questions were optional or mandatory and whether and how the national study managers could adapt the response categories to country-specific needs.[4]

1. To date, four major surveys have been undertaken in the United States: the Functional Reading Study conducted in the early 1970s, the Young Adult Literacy Study conducted in 1985, a survey targeting three specific populations of trainees and job seekers commissioned by the United States Department of Labor in 1989, and the National Adult Literacy Survey fielded in 1992. Statistics Canada conducted the Survey of Literacy Skills Used in Daily Activities in 1989 and fielded the Adult Education and Training Survey in 1990, 1992, 1994 and 1998.
2. The survey description provided in this Annex draws on material from the IALS international reports published previously by OECD and Statistics Canada (1995 and 2000), see references in Annex D.
3. The data were collected in three waves. The first took place in 1994 (Canada, Germany, Ireland, Netherlands, Poland, Sweden, Switzerland (French and German-speaking populations) and the United States). The second was in 1995 (Australia, Belgium Flanders, New Zealand and the United Kingdom). The third and final round of collection occurred in 1998 (Chile, Czech Republic, Denmark, Finland, Hungary, Norway, Portugal and Slovenia).
4. Despite the precautions taken to ensure full comparability, study managers in Germany and Sweden allowed minor deviations to occur in the way some of the questions about adult education were asked. Comparable data for Germany and Sweden are therefore missing for some of the variables used in the analysis.

Countries were encouraged to field sample sizes large enough to yield 3,000 completed cases after non-response, so that secondary analysis and estimates of literacy profiles could be obtained reliably. Although the common target population was people aged 16-65, individual countries were free to sample younger or older adults. Canada, Sweden and Switzerland sampled persons at least 16 years of age but without upper limit, while the Netherlands sampled persons aged 16 to 74, and Australia sampled those aged 15 to 74. Chile also included persons 15 years of age.

Table B.1 gives, for each country, information about the test language(s) used, the size of the target population and the number of survey respondents.

TABLE B.1

Test language, target population size and number of survey respondents

Country	Test language	Population aged 16–65	Survey respondents aged 16–65
Australia	English	11,900,000	8,204
Belgium (Flanders)	Dutch	4,500,000	2,261
Canada	English	13,700,000	3,130
	French	4,800,000	1,370
Chile	Spanish	9,400,000	3,502
Czech Republic	Czech	7,100,000	3,132
Denmark	Danish	3,400,000	3,026
Finland	Finnish	3,200,000	2,928
Germany	German	53,800,000	2,062
Hungary	Hungarian	7,000,000	2,593
Ireland	English	2,200,000	2,423
Italy	Italian	38,700,000	2,974
Netherlands	Dutch	10,500,000	2,837
New Zealand	English	2,100,000	4,223
Norway	Norwegian	2,800,000	3,307
Poland	Polish	24,500,000	3,000
Portugal	Portuguese	6,700,000	1,239
Slovenia	Slovenian	1,400,000	2,972
Sweden	Swedish	5,400,000	2,645
Switzerland	French	1,000,000	1,435
	German	3,000,000	1,393
	Italian	200,000	1,302
United Kingdom	English	37,000,000	6,718
United States	English	161,100,000	3,053

The background questionnaire contained a range of questions concerning, for example, the respondent's demographic characteristics, family background, labor force status, reading habits at work and at home, and self-reports on literacy ability. The section on adult education asked about participation in up to three programs or courses, the duration and orientation of study, sources of financial support, and the reasons for participating or non-participating.

Once the background questionnaire had been completed, the interviewer presented a booklet containing six simple tasks. Respondents who were able to answer at least two of the six questions contained in the screener test designed to identify very low-literate individuals correctly were given a much larger variety of tasks, drawn from a pool of 114 items, in a separate booklet. Interviewer training and supervision were provided, emphasizing the selection of one person per household (if applicable), the selection of one of the seven main task booklets (if applicable), the scoring of the core task booklet, and the assignment of status codes.

The definition of an IALS respondent is a person who has fully or partially completed the background questionnaire. With this information, as well as the reason why the tasks booklet was not completed, it was possible to impute a literacy profile (given a sufficient number of complete responses). Thus the IALS procedures stressed that at a minimum the background questionnaire should be completed by every person sampled.

Several precautions were taken to ensure that response rates would be adequate. Low response rates are of concern in any survey because non-response might result in biased estimates. Interviewers were instructed to return several times to non-responding households in order to obtain as many responses as possible. In addition, all sample designs included some over-sampling. This refers to the inclusion in a sample of more randomly selected households than are necessary for the required number of completed interviews, to ensure a sufficient number of responses. Finally, the IALS sampling guidelines included an adjustment during the weighting procedure to help correct for non-response bias. This correction, known as post-stratification, adjusts the population weights so that they match known population counts, e.g. by gender, age group or education level. All countries post-stratified their data to such counts. Table B.2 presents the response rates achieved by the participating countries.

TABLE B.2

Response rates by country

Country	Age range	Number of respondents	Response rate (percent)
Australia	15-74	9,302	96
Belgium (Flanders)	16-65	2,261	36
Canada	16+	5,660	69
Chile	15-65	3,583	74
Czech Republic	16-65	3,132	62
Denmark	16-65	3,026	66
Finland	16-65	2,928	69
Germany	16-65	2,062	69
Hungary	16-65	2,593	52
Ireland	16-65	2,423	60
Italy*	16-65	2,974	33
Netherlands	16-74	3,090	45
New Zealand	16-65	4,223	74
Norway	16-65	3,307	61
Poland*	16-65	3,000	75
Portugal*	16-65	1,239	60
Slovenia	16-65	2,972	70
Sweden	16+	3,038	60
Switzerland	16+	4,302	53
United Kingdom	16-65	6,718	63
United States	16-65	3,053	60

* The response rate for Poland includes only the first wave of sampled persons, before interviewer follow-up. The response rate for Italy is low but the achieved sample matches known population counts. Portugal conducted its literacy survey as part of an European Union sponsored research study undertaken independently of IALS project by using a similar methodology and equivalent test instruments. Care must be taken when performing more complex data analyses because the number of completed cases is comparatively low.

The response rates realized in IALS are generally lower than those obtained in international surveys of student achievement, in which data are collected from samples of schools, classrooms and students.[5] In several countries with low response rates, follow-up surveys were conducted in order to determine the presence of bias. No evidence of serious bias was found in the countries investigated.

Subsequent to the data collection, the responses were scored and codes entered onto a highly structured international record layout file. Persons charged with scoring in each country received intense training in scoring responses to the open-ended items using the IALS Scoring Manual. To further ensure accuracy, countries were monitored as to the quality of their scoring in two ways. First, within a country, at least 20 percent of the tests had to be re-scored. Second, each country had 10 percent of its sample re-scored by scorers from another country. Further, as a condition for their participation in the IALS, countries were required to capture and process their files using procedures that ensured logical consistency and acceptable levels of data capture error. Specifically, countries were advised to conduct complete verification of the captured scores (i.e., enter each record twice) in order to minimize error rates. Because the process of accurately capturing the test scores is essential to high data quality, 100 percent keystroke validation was needed. Once the quality control team at Statistics Canada was satisfied that the data files were indeed clean and of high quality, the records were handed over to the Educational Testing Service for data imputation and scaling.

The twin goals of the IALS were to generate valid, reliable and comparable profiles of adult literacy skill as well as yielding information about the patterns of adult education participation both within and between countries, a challenge never before attempted. The study also set a number of scientific goals, many of which were related to containing measurement error to acceptable levels in a previously untried combination of educational assessment and household survey research. The findings presented in this monograph leave little question that the study has produced a wealth of data about literacy proficiency and adult education. As with any new measurement technology, however, there remains room for improvement.[6] Quality assurance procedures will therefore be enhanced further in the International Adult Literacy and Life-skills Survey, a new large-scale collection of comparable data on adult skills and patterns of adult learning that is planned for 2002.

5. Examples are the Third International Mathematics and Science Study (TIMSS) conducted at three grade levels in 41 countries under the auspices of the International Association for the Evaluation of Educational Achievement (IEA) during the 1995 school year, and the year 2000 assessment of reading literacy undertaken as part of the OECD-led Program for International Student Assessment.

6. Several areas for improvement are identified in the *IALS Technical Report:* Murray, T.S., Kirsch, I.S., Jenkins, L.B. (Eds.) (1998). *Adult Literacy in OECD Countries: Technical Report on the First International Adult Literacy Survey.* Washington, DC: National Center for Education Statistics, United States Department of Education. Additional suggestions on how to improve future data collections of the type attempted in IALS are offered in an evaluation report published by the UK Office of National Statistics (2000). *Measuring Adult Literacy: The International Adult Literacy Survey in the European Context.* London: ONS.

ANNEX C

The American IALS Background Questionnaire

Section F. Adult Education and Training		
F1.	The following questions will deal with any education or training which you may have taken in the past 12 months. During the past 12 months, that is, since (October/November) 1993, did you receive any training or education including courses, private lessons, correspondence courses, workshops, on-the-job training, apprenticeship training, arts, crafts, recreation courses or any other training or education?	1 ☐ Yes 2 ☐ No *Skip to F15*
F2.	In total, how many courses did you take in the past 12 months?	__ Courses
F3.	What were the names (titles) of these courses or the program associated with these courses? *(Interviewer: If over 3 courses, insert the names of the three most recent courses/programs in the space provided)*	First course: _____ Second course: _____ Third course: _____
First course		
F4.	Now I'd like to ask you about ... [*insert name of first course*] Was this training or education financially supported by *(Read categories)* *(Mark all that apply)*	1 ☐ Yourself or your family 2 ☐ An employer 3 ☐ The government 4 ☐ A union or professional organization 5 ☐ Other 6 ☐ No fees 7 ☐ Don't know
F5.	Were you taking this training or education towards ... *(Read categories)* *(Mark one only)*	1 ☐ A university degree/diploma/certificate 2 ☐ A college diploma/certificate 3 ☐ A trade-vocational diploma/certificate 4 ☐ An apprenticeship certificate 5 ☐ An elementary or secondary school diploma 6 ☐ Professional or career upgrading 7 ☐ Other
F6.	Was this training or education given by... *(Read categories)* *(Mark all that apply)*	1 ☐ A university or other higher education establishment 2 ☐ A further education college 3 ☐ A commercial organization (for example, a private training provider)

		4 ☐ A producer or supplier of equipment 5 ☐ A non profit organization such as an employer association, voluntary organization or a trade union 6 ☐ An employer or a "parent" company 7 ☐ Other provider
F7.	Where did you take this training or education? *(Mark one only)*	01 ☐ Elementary or High School 02 ☐ College Campus 03 ☐ University Campus 04 ☐ Business or Commercial School 05 ☐ Work 06 ☐ Training center 07 ☐ Conference center or hotel 08 ☐ Home 09 ☐ Community center or sports facility 10 ☐ Elsewhere
F8.	For how many weeks did this training or education last?	__ Weeks
F9.	On average, how many days per week was it?	__ Days per week
F10.	On average, how many hours per day was it?	__ Hours per day
F11.	What was the main reason you took this training or education? Was it for *(Read categories)* *(Mark one only)*	1 ☐ Career/job related purposes 2 ☐ Personal interest 3 ☐ Other
F12.	To what extent are you using the skills or knowledge acquired in this training or education at work? *(Read categories)*	1 ☐ To a great extent 2 ☐ Somewhat 3 ☐ Very little 4 ☐ Not at all 5 ☐ Not applicable
F13.	Who suggested you take this training or education? *(Read categories)* *(Mark all that apply)*	01 ☐ You did 02 ☐ Your friends or family 03 ☐ Your employer 04 ☐ Other employees 05 ☐ Part of a Collective Agreement 06 ☐ Your Union or trade association 07 ☐ Legal or professional requirement 08 ☐ Social Services or labor center 09 ☐ Other 10 ☐ Don't Know

F14.	Was this training or education provided through.. *(Read categories)* *(Mark all that apply)*	1 ☐ Classroom instruction, seminars or workshops 2 ☐ Educational software 3 ☐ Radio or TV broadcasting 4 ☐ Audio/video cassettes, tapes or disks 5 ☐ Reading materials 6 ☐ On-the-job training 7 ☐ Other
Check Item	INTERVIEWER: *Look at Question F3. Is there a second course listed?*	1 ☐ Yes, go to Question F4 for the second course. 2 ☐ No, skip to question F5.
	Second course	
F4.	Now I'd like to ask you about ... [*insert name of second course*] Was this training or education financially supported by *(Read categories)* *(Mark all that apply)*	1 ☐ Yourself or your family 2 ☐ An employer 3 ☐ The government 4 ☐ A union or professional organization 5 ☐ Other 6 ☐ No fees 7 ☐ Don't know
F5.	Were you taking this training or education towards *(Read categories)* *(Mark one only)*	1 ☐ A university degree/diploma/certificate 2 ☐ A college diploma/certificate 3 ☐ A trade-vocational diploma/certificate 4 ☐ An apprenticeship certificate 5 ☐ An elementary or secondary school diploma 6 ☐ Professional or career upgrading 7 ☐ Other
F6.	Was this training or education given by... *(Read categories)* *(Mark all that apply)*	1 ☐ A university or other higher education establishment 2 ☐ A further education college 3 ☐ A commercial organization (for example, a private training provider) 4 ☐ A producer or supplier of equipment 5 ☐ A non profit organization such as an employer association, voluntary organization or a trade union 6 ☐ An employer or a "parent" company 7 ☐ Other provider
F7.	Where did you take this training or education? *(Mark one only)*	01 ☐ Elementary or High School 02 ☐ College Campus

		03 ☐ University Campus 04 ☐ Business or Commercial School 05 ☐ Work 06 ☐ Training center 07 ☐ Conference center or hotel 08 ☐ Home 09 ☐ Community center or sports facility 10 ☐ Elsewhere
F8.	For how many weeks did this training or education last?	__ Weeks
F9.	On average, how many days per week was it?	__ Days per week
F10.	On average, how many hours per day was it?	__ Hours per day
F11.	What was the main reason you took this training or education? Was it for *(Read categories)* *(Mark one only)*	1 ☐ Career/job related purposes 2 ☐ Personal interest 3 ☐ Other
F12.	To what extent are you using the skills or knowledge acquired in this training or education at work? *(Read categories)*	1 ☐ To a great extent 2 ☐ Somewhat 3 ☐ Very little 4 ☐ Not at all 5 ☐ Not applicable
F13.	Who suggested you take this training or education? *(Read categories)* *(Mark all that apply)*	01 ☐ You did 02 ☐ Your friends or family 03 ☐ Your employer 04 ☐ Other employees 05 ☐ Part of a Collective Agreement 06 ☐ Your Union or trade association 07 ☐ Legal or professional requirement 08 ☐ Social Services or labor center 09 ☐ Other 10 ☐ Don't Know
F14.	Was this training or education provided through.. *(Read categories)* *(Mark all that apply)*	1 ☐ Classroom instruction, seminars or workshops 2 ☐ Educational software 3 ☐ Radio or TV broadcasting 4 ☐ Audio/video cassettes, tapes or disks 5 ☐ Reading materials 6 ☐ On-the-job training 7 ☐ Other

Check Item	INTERVIEWER: *Look at Question F3. Is there a third course listed?*	1 ☐ Yes, go to Question F4 for the third course. 2 ☐ No, skip to question F5.
	Third course	
F4.	Now I'd like to ask you about ... [*insert name of third course*] Was this training or education financially supported by *(Read categories)* *(Mark all that apply)*	1 ☐ Yourself or your family 2 ☐ An employer 3 ☐ The government 4 ☐ A union or professional organization 5 ☐ Other 6 ☐ No fees 7 ☐ Don't know
F5.	Were you taking this training or education towards *(Read categories)* *(Mark one only)*	1 ☐ A university degree/diploma/certificate 2 ☐ A college diploma/certificate 3 ☐ A trade-vocational diploma/certificate 4 ☐ An apprenticeship certificate 5 ☐ An elementary or secondary school diploma 6 ☐ Professional or career upgrading 7 ☐ Other
F6.	Was this training or education given by... *(Read categories)* *(Mark all that apply)*	1 ☐ A university or other higher education establishment 2 ☐ A further education college 3 ☐ A commercial organization (for example, a private training provider) 4 ☐ A producer or supplier of equipment 5 ☐ A non profit organization such as an employer association, voluntary organization or a trade union 6 ☐ An employer or a "parent" company 7 ☐ Other provider
F7.	Where did you take this training or education? *(Mark one only)*	01 ☐ Elementary or High School 02 ☐ College Campus 03 ☐ University Campus 04 ☐ Business or Commercial School 05 ☐ Work 06 ☐ Training center 07 ☐ Conference center or hotel 08 ☐ Home 09 ☐ Community center or sports facility 10 ☐ Elsewhere
F8.	For how many weeks did this training or education last?	__ Weeks

F9.	On average, how many days per week was it?	__ Days per week
F10.	On average, how many hours per day was it?	__ Hours per day
F11.	What was the main reason you took this training or education? Was it for *(Read categories)* *(Mark one only)*	1 ☐ Career/job related purposes 2 ☐ Personal interest 3 ☐ Other
F12.	To what extent are you using the skills or knowledge acquired in this training or education at work? *(Read categories)*	1 ☐ To a great extent 2 ☐ Somewhat 3 ☐ Very little 4 ☐ Not at all 5 ☐ Not applicable
F13.	Who suggested you take this training or education? *(Read categories)* *(Mark all that apply)*	01 ☐ You did 02 ☐ Your friends or family 03 ☐ Your employer 04 ☐ Other employees 05 ☐ Part of a Collective Agreement 06 ☐ Your Union or trade association 07 ☐ Legal or professional requirement 08 ☐ Social Services or labor center 09 ☐ Other 10 ☐ Don't Know
F14.	Was this training or education provided through.. *(Read categories)* *(Mark all that apply)*	1 ☐ Classroom instruction, seminars or workshops 2 ☐ Educational software 3 ☐ Radio or TV broadcasting 4 ☐ Audio/video cassettes, tapes or disks 5 ☐ Reading materials 6 ☐ On-the-job training 7 ☐ Other
F15.	Since (October/November) 1993, was there any training or education that you WANTED to take for career or job-related reasons but did not?	1 ☐ Yes 2 ☐ No, *skip to F17.*
F16.	What were the reasons you did not take this training or education? *(Mark all that apply)*	01 ☐ Too busy/lack of time 02 ☐ Too busy at work 03 ☐ Course not offered 04 ☐ Family responsibilities 05 ☐ Financial reasons 06 ☐ Lack of qualifications

		07 ☐ Lack of employer support 08 ☐ Course offered at inconvenient time 09 ☐ Language reasons 10 ☐ Health reasons 11 ☐ Other
F17.	Since (October/November) 1993, was there any other training that you WANTED to take but did not, such as hobby, recreational or interest courses?	1 ☐ Yes 2 ☐ No, *skip to G1.*
F18.	What were the reasons you did not take this training or education? *(Mark all that apply)*	01 ☐ Too busy/lack of time 02 ☐ Too busy at work 03 ☐ Course not offered 04 ☐ Family responsibilities 05 ☐ Financial reasons 06 ☐ Lack of qualifications 07 ☐ Lack of employer support 08 ☐ Course offered at inconvenient time 09 ☐ Language reasons 10 ☐ Health reasons 11 ☐ Other

ANNEX D

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ANNEX E

About the Authors

Albert Tuijnman, Ph.D., is Professor of Comparative Education at the Institute of International Education, Stockholm University. From 1992 until 1998, as a Principal Administrator at the OECD, he helped prepare the first editions of *Education at a Glance* and *Education Policy Analysis,* reports on the *International Adult Literacy Survey,* and a major publication on *Lifelong Learning for All* for the 1996 Ministerial. Mr. Tuijnman has published extensively in his fields of expertise: comparative education, education economics, and adult education.

Emmanuel Boudard, is a Research Analyst and Ph.D candidate at the Institute of International Education, Stockholm University and member of the EU-sponsored TMR network (Training Mobility of Researchers). He was formally an OECD Statistician responsible for the International Adult Literacy Survey database.

International Adult Literacy Survey

Monograph Series

The International Adult Literacy Survey (IALS) was a 22-country study conducted between 1994 and 1998. In every country nationally representative samples of adults aged 16-65 were interviewed and assessed at home. The goals of the survey were to create comparable literacy profiles across national, linguistic and cultural boundaries and to study the factors that influence literacy proficiency. One factor in particular was singled out for attention, namely the role of adult education and training in improving literacy skills and wider labor market outcomes.

The monograph series includes studies by literacy scholars and experts drawing on the IALS database. This particular monograph was funded by the United States Department of Education, Office of Vocational and Adult Education, Division of Adult Education and Literacy. Other studies in the series were funded primarily by Human Resources Development Canada and Statistics Canada.

Today the capacity of labor markets, firms and individuals to adjust to change, improve productivity and capitalize on technological innovation depends in large measure on the skills of the adult population. Improving the stock of skills available to the economy through investment in adult education and workplace learning is therefore an issue of considerable strategic importance.

This monograph presents 15 international indicators that allow readers to compare the volume of adult education participation in North America with that of other advanced industrialized nations. The data offer a comparative snapshot of the total adult education effort as well as the social distribution of adult education opportunities in the mid to late 1990s. The findings generally suggest that both Canada and the United States have mature adult education and training markets. However, the findings also indicate that there are major differences among countries in who gets trained, and how much. On most measures North America finds itself in an average position, ahead of emerging economies but behind the Nordic countries.

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